

AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

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D. K. MINOR, EDITOR.]

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AMERICAN RAILROAD JOURNAL, &c.

NEW-YORK, MAY 4, 1833.

NEW-YORK GUARD RAIL.—A continuation of Mr. Bulkley's reply to Mr. Sullivan, upon the subject of this rail, will be found in this number of the Journal; also, a second communication from Mr. Sullivan. The subject being one of importance, we do not deem an apology necessary for devoting so much space to its discussion.

The editor of the National Gazette, after an absence of nine days from his editorial chair, gives the following description of his journey home, via railroad:

We have recently journeyed between Philadelphia and New-York by the railroad line. Yesterday we left New-York in the beautiful and spacious boat the New Philadelphia, at about a quarter past six o'clock, A. M., and arrived at Chesnut street wharf before three P. M. The New Philadelphia reached South Amboy in two hours and a quarter. The fine and commodious cars on the railroad were drawn to Bordentown eleven miles the hour, without undue fatigue of the horses, or any circumstance that could lessen the sense of security and comfort with which every passenger seems to set out.

This conveyance is truly admirable for the ease and order which attend it for all parties. Each car is divided into three compartments, and contains twenty-four persons. Two horses are attached to it *tandem*; they pursue the track, under the guidance of skilful drivers, with the nicest exactness. We could not perceive, by the motion of the vehicle, the slightest deviation from the grooves; and the route is of more than 30 miles. One track is complete: great activity prevails in the work necessary for the accomplishment of the whole design. The average duration of the journey

between the two great cities, by this railroad line, is now eight or eight and a half hours. It will be less, considerably, when a locomotive engine shall be employed. A new and spacious steamboat is also to be soon provided. We shall then see the consummation of all that can be deemed desirable, for we presume that such precautions can be taken as would exclude almost the possibility of serious accidents or delays.

At present breakfast may be taken at home, and an invitation to dinner at New-York or Philadelphia for 3 o'clock, accepted with the assurance of a timely arrival. Ere very long, we may presume, the journey between Baltimore and New-York will be performed in the summer in one day by the light of the sun; and this without weariness from motion. In the same way the Philadelphian may visit New-York and return by the family tea-hour. The facilities which this railroad provides for the transportation of merchandise, provisions, and so forth, form another signal advantage, upon which we might descant in greater detail; but they are readily to be conceived and appreciated. Experience will teach their value before the next autumn.

To the Editor of the American Railroad Journal:

Sir,—Your correspondent J. S. merits and receives my most hearty thanks, not only for the hints he has dropped, but for having dropped them through the columns of your useful paper, by which he served the double purpose of informing the public and me. I propose to treat of the laying out, the constructing, the use, and the repair of every kind of road except railroads, which I leave for abler hands. My range is wide enough without them, and so wide that in some cases I need others to guide my pen, who are of greater experience than myself. Although the hints and observations thus thrown out may not all be new to me, yet they may be beneficial by eliciting new ideas in others, and awakening those in my mind which otherwise might remain obsolete. I hope J. S. and S. D. may be induced to renew and continue their communications, and that others may join them. There are hundreds that might add to the common stock of knowledge in the country, which if collected would be respectable and useful. It will be a year, perhaps years, before a treatise will appear from my pen.

Although science is a necessary and convenient accompaniment of practice, and the base and beauty of it, yet the knowledge of

men of observation generally is nearer on a level than might at first glance be supposed. Every day's experience confirms me in the "belief that no man of observation is so ignorant that he cannot teach, nor so wise that he may not learn." A teacher may learn more of the art of teaching from his pupils than from all the books he reads, and as Jno. Loudon M'Adam has found, there are none so impregnable to instruction as the smatterer who reluctantly parts with "previously imbibed notions."

In respect to the concave road proposed by my friend J. S., I cannot speak from practice, but fear it will be subject to serious objections, among which might be the washing of collected currents on long slopes, the choking of "hollow drains," &c. At present I would propose a slightly convex cover, as recommended by Mr. McAdam, but as it is next to impossible to maintain such a curve so truly as sufficiently to free the course of water in most situations, the undulatory system recommended by J. S. is necessary in a convex road. The slopes forming these waves should in no case exceed one half of a degree, or one in 115. I once undertook to throw up a level into undulations of one degree, but found they would be unsightly in appearance, expensive in construction, and inconvenient in use. Yours respectfully,

JNO. S. WILLIAMS.
Cincinnati, Ohio, April 13, 1833.

NIGHT AND DAY TELEGRAPHHS IN FRANCE.

—A project has been laid before the Government by a Company (Messrs. Ferrier and Co.,) for improving telegraphic communications to such an extent, that they will be able to transmit intelligence an immense distance at any moment of the night or day. This plan is especially calculated for the conveyance of commercial intelligence. A million of francs will be sufficient, according to the Company's calculation, to establish a full complement of telegraphs between Paris and the following places:—Havre, Calais, Lille, Maubeuge, Marseilles, Toulouse, Bordeaux, and Nantes. The yearly expense they calculate at 900,000 francs, but the produce per annum would be 2,803,203 francs.—[London Times.]

[From the Albany Daily Advertiser.]

SARATOGA AND SCHENECTADY RAILROAD.—This road is constructed by a joint stock company, incorporated in 1831. The capital was originally \$150,000, but the amount has been increased by an additional subscription of \$100,000, made in 1832.

It was commenced in 1831, and was so far finished

as to be used for the transportation of passengers early in 1832. A number of beautiful cars was placed upon the road, and although the cholera prevented the usual travel to the Springs, the business actually done under all the disadvantages was much greater than could have been expected. The road was not finished through the village of Ballston, and post coaches were employed to take passengers going to Saratoga, over the valley of the Kayderossers. A very admirable piece of masonry carries the road across the creek, and it is now entirely finished.

This road is another proof of the remarkable facilities existing in this country for the construction of works of internal improvement. It is nearly level, and admirably adapted for swift and safe traveling.

The general course of the road from Schenectady to Saratoga Springs is about north 30 deg. east.

For three-fifths of the distance it is straight, the residue consists of curves of various radii, which, with the exception of those at Saratoga and Ballston, do not exceed from 3,000 to 7,500 feet.

The graduation of the road is mostly level. The undulations are very gentle, and in no place exceed an ascent of 16 feet in a mile, or one in 330 feet.

The work is of substantial and durable character, with the exception of a few bridges of timber, and for three miles of the road, the rails rest on stone foundations; the residue are laid upon wood. The rails are of yellow pine, and are covered with iron plates weighing 23 tons per mile.

The length of the road from the bridge over the Mohawk at Schenectady to its termination at Saratoga, is 21.40 miles. The total cost of its construction, including carriage houses, stables, and two dwellings, is \$217,201.22, or \$10,149 per mile.

A locomotive engine has been ordered and is expected to be on the road by June or July next.

A more beautiful route, and a cheaper and better road, cannot be found in the United States. The effect is already to be seen in the villages of Ballston and Saratoga, where real estate is coming into demand.

It is calculated that there will be 35,000 persons passing over the road from the 1st of May to the 1st September, judging from the summer business heretofore done. Merchandise in considerable quantities has been transported to the north by this route since the opening of the navigation, and some canal freight it is said has been taken in advance of the opening of the northern canal. On the whole, we consider this road the most successful experiment yet made, so far as regards the cheapness of construction and the great profit to be derived from the investment.

[From the Rochester Republican.]

ROCHESTER RAILROAD.

To the Stockholders of the

Rochester Canal and Railroad Company:

The object proposed to be attained by the incorporation of the Rochester Canal and Railroad Company was the increased facility of transportation between the Erie Canal and Lake Ontario. You are aware, that at Rochester the Erie Canal is distant about three miles from the head of ship navigation, and that all vessels which can enter the harbor at the mouth of Genesee river, can come up to within this distance of the canal, and of the business centre of Rochester. It was deemed important to the interests of the company, and the public benefits proposed to be derived from the work, to intersect the canal in the business part of the town, near the principal mills, ware-houses, and other business establishments, and also that the route of the road should be such as to grant every possible facility to the profitable employment of the mills and extensive water-power near and adjoining the present location of the road. The northern termination of the road on the Genesee river being within the limits of the proposed city incorporation, and uniting the harbor of the Genesee river with the business centre of the town by so cheap and expeditious a mode of conveyance, cannot fail to aid greatly the commercial enterprise of our citizens, and to add greatly to the profitable trade heretofore carried on with various ports and places on Lake Ontario and the St. Lawrence river.

The elevation of the canal above the Genesee river, to the highest point where it is navigable for vessels of the description employed in the lake navigation, is 254 76-100ths feet, and

being there, and for most of the distance between that place and where it unites with Lake Ontario, enclosed between high, precipitous, and rocky banks, presented almost insuperable obstacles to the importation of heavy articles from the lake, such as salt, pig iron, wheat, timber, lumber, &c. unless by a land carriage of seven miles, being the distance from the lake to Rochester. The expense of this seven miles of transportation by land has hitherto confined the transportation mainly to descending freight, which could be transported three or four miles by land, and thence from the warehouses down inclined planes, by temporary machinery, at an angle of 45°, 160 feet, to the river, where vessels could receive it. The object attained by our railroad is the connection of the town by a cheap and expeditious mode of conveyance, with the harbor of the Genesee river, and at the same time providing for ascending freight.

The location of the line, and forming the grade so as to equalize as far as practicable the descent, and passing through a dense population, as well as descending from the canal, required more cutting and embanking, and expensive items of masonry, than was expected at the commencement of the organization of this company. The directors have availed themselves in the absence of any local experience in the construction of railroads, of the advice of John B. Jarvis, Esq. who viewed the premises and has advised in its location, and assisted in obtaining and constructing the most approved cars. David Bates has been employed to give the levels and curves, under the advice and assistance, (when sick,) of David S. Bates, Esq. The cars have been principally constructed by J. H. Whitbeck, at the shop of Whitbeck & Hanford. The superintendent, as far as practicable, has economised in every part of this work, it being a road which was to test the experiment in this section of the state; obtaining at the same time the best materials, and built in an improved form. However, in consequence of the inexperience of all the artisans, not having the opportunity of obtaining materials advantageously, the unfavorable weather in the spring, the sickness of the season, and the short time taken to execute the work, the work has cost more than if built under other circumstances. In locating the main stem of road track, 75 chains is in curves of different radii, and 165 chains in straight lines, divided into sections as follows:

1st Section, 63 chains from aqueduct descending, (except crossing Main st.)	feet 5,33
2d Section, 127 ch. descent 408-1000 pr. chain of 66 feet.	51,90
3d Section, 27 ch. 50 l. to warehouse on high bank, descent 1 473-1000 pr. chain,	41,05
4th Section, 600 feet, descent 1 foot in 6 feet, to Fall brook,	100,00
5th Section, 339 feet, descent 1 foot in 6 feet, to steamboat wharf,	56,50

feet 254,78

The principal inclined plane, 4th and 5th sections, is graded in steep, precipitous rock banks, requiring an average cutting of 30 feet on the upper side of the road, and the filling of a ravine at Fall brook, 50 feet in depth, principally of stone. At this point is an angle in the plane, and the artificial table receives Fall brook, after nearly a perpendicular fall of 100 feet, which water is designed to be used as stationary power. These sections are nearly completed, and are intended to be in operation on the opening of the navigation. The other parts of the track, with eight branches and turn outs, with circular platforms, being three miles and five chains of single track, has been in use for a part of the fall business. The organization of the company and the filling up of the stock was not completed until April, at which time the work was efficiently commenced.

The company's expenses under the following general heads are as follows:

Land purchased that is available, other than the line of road,	\$3,593,80
44,802 yards of excavating and embankment, at \$10.93 per yard,	\$4,699,41
2,286 perches of masonry, at \$69.37,	1,585.82
2,023 yards gravel, for horse paths, at 28 cents,	506.25
	7,051,48
Lumber and timber account,	3,623.52
Iron rails, spikes, 8 sets turn out irons, &c.	4,467.64
Pleasure and freight cars, horses, harness, &c.	3,397.62
Expenses of 4th and 5th sections, inclined plane,	3,737.46
Engineering, superintendance, and contingent expenses,	1,521.01
	29,992.48

Or thus:

Property on hand, other than line of road, being land cars, &c. and materials not used,	\$8,742.67
221.74 chains, single track of wood, 478 feet crossings, turn outs, circular platforms, wood work to one viaduct and 22.75 chains of track on stone blocks,	8,939.86
Grading, masonry, and horse paths,	7,051.48
4th and 5th sections, inclined plane to wharf,	3,737.46
Engineering, superintendance, and contingencies, (estimated.)	1,521.01
	29,992.48

RESULTS.

Expenses of road, yellow pine rail, on sleepers and sills, finished complete per mile,	\$2,727.20
Expense of road, yellow pine rail, stone blocks, 8 cubic feet to each block, per mile,	4,098.40
Grading, per mile, single track, masonry, including grade of branch not used, 2d track,	2,076.80
Receipts to 1st January, 1833.	
From pleasure cars,	\$1,004.97
From freight cars,	397.00
	1,383.97
Deduct expenses connected with receipts,	357.21
	1,026.76
Interest of money on instalments since called in, to 1st Jan. 1833,	810.52
Amount of capital \$30,000—92 per cent. called in,	27,600.00
Add balance of receipts,	1,026.76
	28,626.76
Expended,	\$29,992.48
Deduct paid,	28,626.76
Owing by the company	\$1,365.72

To pay this amount and divide the above receipts will use the capital of the company. By retaining the receipts and a call for the balance of the stock, and the use of some part of the available means, will complete all the objects contemplated in the original design of the company, without interfering with the dividends or receipts of the coming year. The pleasure cars of the company will accommodate 500 passengers per day, and the freight cars on hand will conveniently transport 800 brls. per day. The directors are satisfied, that the objects contemplated by the company will be advantageous to the public, as well as profitable to the stockholders. They further feel assured, that a single track wood road could be continued up the Valley of the Genesee river, it being a favorable route for grading, for a sum not exceeding \$5,000 per mile, including all expenses of construction.

ELISHA JOHNSON, President,
and Superintendant for Construction.
Rochester, 1st January, 1833.

IMPROVEMENTS IN PENNSYLVANIA.—Internal improvements in this state are progressing with extraordinary rapidity. It appears from the report of the Canal Commissioners, read in Senate Dec. 6, 1832, that, of the works constructed by the State, there are completed in canals now navigable, *miles* 479 $\frac{1}{4}$. In hand and likely to be completed during the present year, 103 $\frac{1}{2}$. Independently of these, there are others constructed at the expense of corporations, and now in actual use, 280 $\frac{1}{4}$.

Thus on the 1st January, 1834, the total of navigable canals will be 863 $\frac{1}{4}$.

In the construction and completion of railroads, great progress is making also. We learn that there are 415 $\frac{1}{2}$ miles either completed, or progressing so fast that nearly all will be completed during the present year. Independent of this, other companies are forming.

In the 14th number of the 2d volume of this Journal, for March 5th, will be found an interesting letter from Mr. Edmund S. Coxe, of Philadelphia, giving a description of some of the improvements going on, but as we conceive a more detailed list would not be uninteresting to our readers, we shall lay before them a complete list of railroads and canals, finished and unfinished, the greater part of which we copy from the Philadelphia Commercial Herald.

CANALS CONSTRUCTED BY THE STATE.

1. Canal from Columbia, on the Susquehanna, to the mouth of the Juniata, and up the Juniata to Hollidaysburg at the eastern base of the Alleghany mountain—distance 171 miles 246 perches.

2. Canal from Johnstown on the Conemaugh, at the western base of the Alleghany, down the Conemaugh, Kiskeminetas and Alleghany, to Pittsburg—distance 105 miles. [The above lines, connected by the "Portage Railroad," over the mountain, form the great east and west communication. It has a double connection with Philadelphia, one from Columbia, by way of the Pennsylvania Railroad, and the other from Middletown, nine miles below Harrisburgh, and eighteen miles above Columbia, by the Union Canal.]

3. Canal from the mouth of the Juniata up the Susquehanna to the forks at Northumberland, then up the north branch to a point 2 miles below Wilkesbarre. Distance 96 miles 295 perches. [It is contemplated to extend this at some future day to the north line of the state, when a communication by canal and railroad will take place with the Erie Canal.]

4. Canal from Northumberland at the forks of the Susquehanna, up the west branch to the Muncy dam—distance 26 miles 160 perches. [For extension see below.]

5. The French creek feeder, intended to supply with water the future communication between the Ohio and Lake Erie—length 19 miles.

6. A canal from Bristol to Easton on the Delaware—length 59 miles 240 perches. [This is the channel by which the coal trade of the Lehigh reaches Philadelphia.]

CANALS CONSTRUCTED AT THE EXPENSE OF CORPORATIONS, AND NOW IN ACTUAL USE.

7. The Union Canal from the Schuylkill opposite Reading, to the Susquehanna at Middletown—length 82 miles 88 perches. Branch Canal and feeder, belonging to the Union Canal Company, 22 miles in length, through the great iron region of the Junia-

with a railroad of four miles to the Pine Grove coal mines.

8. The Schuylkill Navigation from Port Carbon on the Schuylkill to Philadelphia—length 108 miles.

9. The Lehigh Canal, from Easton on the Delaware up the Lehigh to Mauch Chunk—distance 46 miles.

10. A part of the Hudson and Delaware Canal, from Honesdale on the Lackawaxen to the mouth of that stream—supposed 20 miles.

11. Conestoga Navigation, an improvement of Conestoga creek by locks and dams from its mouth up to the city of Lancaster—distance about 14 miles.

12. The Codorus navigation, an improvement of Codorus creek from its mouth up to the borough of York—length about 10 miles.

Total of canal navigation now in use, 759 $\frac{1}{2}$ miles.

The canals authorized and now in progress at the expense of the State, and likely to be navigable by the end of this year, are

From Muncy dam on the West Branch up that river to the mouth of Bald Eagle creek. Distance 40 miles and 18 perches. [This is an extension of No. 4, and will complete the improvement contemplated in that quarter.]

From two miles below Wilkesbarre up the north branch of the Susquehanna to the mouth of the Lackawanna—distance 12 miles 316 perches. [This is an extension of No. 3, and will leave about 90 miles towards the north line of the State untouched.]

From the confluence of the Beaver with the Ohio, (20 miles below Pittsburg,) up the former river to Newcastle—distance 24 miles 240 perches. [This is the commencement of a communication between the Ohio and Lake Erie, which will pursue a northerly direction up the valley of the Shenango to the summit at Conneaut lake, thence to Lake Erie, at the town of Erie. At the Conneaut summit it will be supplied with water from French creek, by a feeder described above as No. 5. From Newcastle to Erie, by the route selected, will be about 78 miles.]

A canal and slackwater along French creek, from the commencement of the feeder to the junction of that creek with the Alleghany—distance 25 miles 224 perches. [This work does not form a part of any great communication.]

By this statement it appears that after the present year only 90 miles on the north branch of the Susquehanna river, and 78 miles between the Ohio and Lake Erie, will remain to complete the whole system of improvement adopted by the State of Pennsylvania, and upon which operations commenced in the summer of 1826, less than seven years ago. That system will embrace when completed:

1. A great line of communication from Philadelphia, passing by Lancaster, Columbia, Middletown, Harrisburgh, Lewistown, Huntingdon, Hollidaysburg, Johnstown, Blairsville, Pittsburg, Beaver, Newcastle, and Meadville, to the Borough of Erie, on Lake Erie. The whole distance 481 miles, of which 118 miles is by railroad, 20 miles by the Ohio river, and 343 miles by canal. Distance from Philadelphia to Pittsburgh 358 miles. [This passes

ta, the salt and bituminous coal of the Conemaugh, Kiskeminetas, and Alleghany, and a country abounding in agricultural product.]

2. A great line from Philadelphia to the junction of the Tioga with the North Branch of Susquehannah, on the boundary of New-York, where a communication is now forming with the Erie Canal, by way of Chenango Point. This line diverges from the former at the mouth of the Juniata, and passes Liverpool, Selin's Grove, Northumberland, Danville, Berwick, Wilkesbarre, Pittston, Towanda, and Athens. It passes through the Wyoming coal region, and opens a rich agricultural country to market. Whole distance 324 miles, of which 81 miles are by railroad, and 234 by canal—common to the great western route 81 miles of railroad and 43 of canal.

3. The West Branch Canal from the mouth of Bald Eagle to the Forks at Northumberland, where it unites with the line last mentioned. It opens the richest land in the State, the valuable iron of Bald Eagle valley, and the inexhaustible beds of bituminous coal on the West Branch and its tributaries. These articles will have their choice of markets between Philadelphia and the interior of New-York, where both are needed.

4. The Improvement of French creek and the Delaware Canal, which at present are rather detached works than parts of any great system of communication.

This brief summary, including all the works undertaken or contemplated by the State is sufficient to show that the Pennsylvanian system of improvement is simple in itself, and that almost every part is necessary to the perfection of the whole. By an examination of the map it will appear that every important section of the State, which it was practicable to reach, has been brought into communication with the city of Philadelphia. The counties on the southern border, whose waters run into the Potomac and Monongahela, are alone excluded—and that by the operation of paramount natural causes.

RAILROADS.

1. Pennsylvania Railroad, constructed at the expense of the State, from Broad street, Philadelphia, to the Susquehanna at Columbia, and there joining the Southeast termination of the State Canal,—distance 81 $\frac{1}{2}$ miles—30 miles being in actual use, and the whole in a fair way to be finished this year.

2. Portage Rail Road—constructed by the State—across the main Alleghany mountain by a series of inclined planes, connecting the Juniata at Hollidaysburg with the Conemaugh, at Johnstown—distance 36 69.100 miles, including a tunnel of 900 feet long, four large viaducts, and other works of great magnitude. This unites the Eastern Canal with the Western, and will complete the line of communication between Philadelphia and Pittsburg. A great part of this work is now completed, and will be in use next year.

3. The West Chester Railroad* is a branch from the Philadelphia Railroad to flourishing village of West Chester. It unites with the Pennsylvania Railroad on the South Valley Hill, two miles west of Paoli. It is the property of a Company composed of enterprising citizens of Philadelphia and West Chester. Length nine miles—cost about \$100,000. Completed, and now in use.

* See Railroad Journal, No. 5. Vol. 2.

4. The Philadelphia, Germantown, and Norristown Railroad. The line begins at the intersection of Spring Garden and Ninth streets, and terminates at Norristown. Six miles of this distance are completed, and now in use. Preparations are making to finish the remainder. Made at the expense of a company.

5. Little Schuylkill Railroad. From Port Clinton, at the mouth of Little Schuylkill to the village of Tamaqua, on that stream—distance 21½ miles, with several branches to coal mines. This is the work of a company, and is designed, principally, to transport coal to the Schuylkill navigation. Finished, and in use.

[To be continued.]

To the Editor of the American Railroad Journal.

SIR.—In submitting a few remarks on Mr. Bulkley's cast and wrought iron Rail, I felt aware of the natural sensitiveness of inventors to any objection to their improvements, often the favorite child of much mental labor, and touched on its vulnerable points with tenderness. But all such things being comparative, and their value depending on some calculable principle, that can be understood without *seeing* the metal, as well as if one had opportunity is given, if it will bear the test, of proving by experiment the difference between a cast rail with a *lengthwise opening* through it, and the same with a rod inserted and riveted.

It is true that he insists that this rivetting is equivalent to the abutments of an arch; and that the labor of doing this may even be dispensed with by the contraction of the cast metal, around the wrought bar. But *nobody* will believe this without experiment, because it is contrary to experience in other cases. Let him place the bar in the *centre* of the mass, and it will contract to it; but if placed towards the lower side, it seems to me it cannot.

He gives no dimensions by which computation may be made, except that each foot suitable to props 8 feet apart, weighs 20 lbs., of course 1 inch weighs one and two-thirds of a pound, and contains 7½ cubic inches, and may therefore be 2½ inches broad and three inches deep, and will therefore support a weight, if the props are 8 feet apart, of 1 ton and 150 pounds—but he says will bear 10 tons. If so, the effect must be very much to lessen the quantity of iron, in rails.

I however beg leave to reserve my belief in it until this is experimentally shown. The assurance of it will not at present excuse any engineer, who may be directed to calculate on this kind of rail, to order them of *less size* or dimensions than the strength of the cast iron *alone* will prescribe, because no work for use can be permitted to be more experimental than is indispensable. In this case, if there be any who think a cast iron surface preferable, the proof of strength is easily made.

And if it bears the test, the objections producing it may prove to have been of much use to the inventor and the public.

It seems to me there is a better way of advancing confidence in any real *improvement*, than in asserting comparative excellence, that it will not pass with those whose business it is to know the facts resulting from practice. I take the case to be that wrought iron rails are durable, and do not exfoliate; but if the *combination* will so *increase strength* as to lessen *quantity and cost*, then the rail, *combined* of cast and wrought, may be in some places preferable.

So also I think there are in our country extensive routes on which it is necessary, for the economy of capital, to use wood, but unless *precautions for its durability* be taken, it will prove in the end dearer than iron.

J. L. SULLIVAN.

April 27, 1833.

[For the American Railroad Journal.]

MR. EDITOR.—I propose for insertion in your Journal, some *additional* remarks relative to the "GUARD RAIL," as also *extracts* from celebrated publications advertizing to Metallic Rails: which remarks and extracts are occasioned by an article written by Mr. Sullivan, and published in your Journal of April 20th, in which he *misrepresented* the principle on which the Guard Rail depends, as also the theory and the practical results of uniting wrought and cast iron as practiced in the manufacture of "Guard Rails," thus causing a controversy publicly on points, the which a few minutes' trouble in examining the rails in my possession would have *satisfied* him of his *error*: his remarks, therefore, proceeding from a *mistaken view* of the true nature of the case in question, seem the more remarkable when they were in direct *opposition* to statements of eminent engineers who *had examined it*; and I may say, in opposition to *every individual* who has *examined it*, for, when understood in principle, I have not known an instance of its being disapproved of.

A highly respectable engineer in this city, who has *become eminent* for skill, sound judgment, general knowledge in his profession, and lastly, not the least, his *remarkable caution* in deciding on the merits of new projects, examined the *description and specification* of the "Guard Rail," and *models*, minutely; and remarked that his impressions were in favor of it, and added that, before he could make up his mind *fully*, he must see a rail with all its appendages in full size for use: consequently a full sized rail, pedestals, keys, and fastenings, the rail containing a *wrought iron* rod through its lower edge, from end to end, which, of itself, would sustain a distending force of more than forty tons, was made, and when this rail was examined by him, it was not only approved of, but recommended favorably to proper sources for immediate adoption.

It is not at all remarkable, that if a *new project* be announced, wearing the semblance of supercedure or competition with old or other projects, it should excite feeling; indeed, it would be remarkable if it were not so; it, however, is so, and is equally so in Europe as in this country. Every specific project has its *interested advocates*, and any appearance of innovation is met with a *jealous eye*; and when at a loss for *reasonable objections*, feigned ones become substituted. But it is always *easy to distinguish* by the import of *publications* on such subjects, whether they were penned with feelings of *personal interest*, with a view to the *public good*; and *judicious* conductors of at least so important concerns as the *establishment of railroads*, will search out and decide on *merits*.

I remarked that Mr. S. had misrepresented the principle on which the "Guard Rail" depends, as also the theory and the practical results of uniting wrought and cast iron, as *practised* in the manufacture of "Guard Rails." He stated that, "when melted iron is poured around a cold bar of wrought iron, the latter expands, and on cooling *contracts*, and the cast iron in cooling *shrinks*, leaving it *loose* in the *bore*, towards the centre of the mass. All (he adds) depends, then, on this subsequent operation, and the quantity of *heading* produced by percussion."

In *practice* the result is as follows: A *wrought iron* rod of the required strength being first properly placed and secured within the mould, cast metal in a *fluid state* is poured into the mould, which, when coming in contact with the rod, causes the rod to expand; and when sur-

rounded by the fluid metal, and while the cast metal in the centre of the mass is yet in its *fluid state*, the rod by *contact* is brought to a red heat, and both by contact become of equal temperature: and as the *contraction* of wrought and cast iron, under equal temperatures, is the same, or so nearly alike that castings made on this principle appear as perfect as castings without rods, and when cold the rod is firmly held in contact within the cast metal—not *loose*, as remarked by Mr. S.; and such also, we should presume to be the effect in theory. Mr. S. states, as above, "cast iron in cooling *shrinks*, leaving it *loose* in the *bore*." Its quantum of shrinkage is one eighth of an inch to the foot, and I presume any iron founder would inform him that the *very fact* of its *shrinkage* is a cause of an orifice in cast metal being *smaller* when cooled than when in its *fluid state*.

In furtherance of Mr. S.'s objections, he stated as follows: "Besides, the claim of this improvement is founded in the assertion that there is a necessity for it, assumed contrary to experience;" and adds, "it is denied by some of the most distinguished of the English engineers, that wrought iron *exfoliates* under the wheel," and further adds, from Wood's *Treatise on Railroads*, several extracts, all of which are on *one side of the question*: one, and the most remarkable of which, is the statement purporting to be made by Mr. G. Stevenson, of Newcastle, who stated "It has been *said by some engineers* that the wrought iron *exfoliates*, or separates in their *laminæ*, on that part which is *exposed to the pressure of the wheels*," and adds, "this, he says, I pointedly deny, as I have closely examined rails which have been in use for many years." This denial of Mr. Stevenson, to say the *least* of it, was a poor compliment to those engineers whose experience probably warranted their making those statements: in *another light*, it is of the description sometimes termed "knock-down argument," generally proceeding from sources where *basis is wanting* for sound argument. But, as I before remarked, feeling on subjects of this nature runs high in England, as well as in this country; every specific *object* has its *interested advocates*, who will use every means in their power for its attainment. And such judicious directors and engineers, who view statements in their proper light, will examine, and decide for themselves.

I will add one more of Mr. S.'s quotations, as follows: "Mr. R. Stephenson, of Edinburgh, bears testimony to the preference of wrought iron, of which he says half the weight of cast iron will suffice." This I admit, but it should be borne in mind that Mr. Stevenson alluded to cast iron rails as *then used*, which were liable to cause accidents by sudden fracture; consequently they required to be made of *say double the weight* of wrought iron: this, therefore, is not a point in competition with the "Guard Rail," which was not known at the time that statement was made. The true *contrast*, in comparison with the "Guard Rail," would be as follows: The *wrought iron* edge rail in common use weighs say 12 to 15 lbs. per foot, for *say foundations three feet apart*: the "Guard Rail" of dimensions as now made, say 20 lbs. to the foot, with foundations **NINE FEET APART**. Its *usefulness* in this, the primary object of it, is even admitted by Mr. S., as appears by his remarks, which he stated as follows: "In cities, where the object is to have *few supporters*, and *guard against shocks*, it is highly probable it would be comparatively useful." So far as relates to the *saving of capital*, added to the consequent dispatch in *completing roads*, it is as *important to dispense with two-thirds* of the usual number of foundations in the *country* as in *cities*, besides the *important advantage* of the lesser number of foundations to be kept in order; and it is *equally as important* to *guard against "shocks"* in the *country* as in *cities*. Mr. S. further quotes from Wood's *Treatise*: "Page 71, mention is made of a Mr. Hawkes, who attempted an improved rail of this kind, cast over wrought

iron, but without success, from the occurrence of partial difficulties, which, perhaps, Mr. Bulkley's method may have overcome." It may here be well to mention what those partial difficulties were, in order to show that it was a different description of rail. It was deemed a desideratum in the construction of "Rails," to retain the benefit of a hard cast iron upper surface for the wheels to run upon. Mr. Hawkes' improvement for attaining that point was as follows: He first constructed a rail of wrought metal, upon the upper edge of which were dovetails, or notches, and over these notches cast iron was applied, so that the upper edge of the rail for about three quarters of an inch down was cast iron, and the lower part of the rail was wrought iron, so that the wrought iron part was not only exposed near the surface to corrode, but a trifling deflexion produced by weight passing over them, caused the thin cast iron plate to crack, and work loose upon the notches; whereas the "Guard Rail" not only possesses the advantage of a hard cast iron upper surface, but its lower surface is also of cast iron, the wrought iron part is incased and protected from corrosion, and the rod passing through the lower edge of the rail from end to end as before described, secures the rail on the principle of the "arch."

Although it is considered by judges who have examined the "Guard Rail," that it combines qualities rendering it independent of the good or bad qualities of every other description of rails, yet, inasmuch as partiality has been shown in quoting extracts from publications relative to the subject in question, I propose to add a few, and but a few, extracts in this communication, as I find it to be already too long.

Tredgold, in his Treatise on Railroads, page 128, stated as follows: "Malleable iron rails have been applied only as edge rails, and we have already noticed the advantage they possess in giving connection to the parts and strength to the rails themselves. But it has been observed, that the great weight on the wheels, rolling on those rails, extends the lumina composing their upper surfaces, and at length causes these surfaces to break up in scales. This defect is a very serious one. It has," he adds, "been found that an overstrain does not break them, but only gives them a set curvature in proportion to the weakness, and hence the upper fibres become crippled and upset, to use a technical phrase, very expressive of the fact."

It should be remarked that Tredgold alludes to this effect being produced by great weight. Probably rails used only for light loads would not be thus affected. Again in Tredgold, page 130: "Wrought iron rails have yet had but an imperfect trial; we expect they will be found of short duration; and in consequence of knowing that wrought iron exposed in a similar manner to the action of moisture does decay very rapidly. We have inquired respecting the fact of the probable duration of wrought iron rails, and have had many opinions, but not a fact worth transcribing. The process of decomposition," he adds, "is, undoubtedly, slow, but constant; and before putting down 40 or 50 miles of road with this material, there should be clear evidence of the time it is likely to last." It is assumed by the advocates of wrought iron, that, while in use, the process of decomposition is checked: of this there can be no doubt, at least so far as relates to the upper surface; but whether checked in those parts which are placed in pedestals, is doubtful. Wood, in his Treatise, when on this part of the subject, remarks on the difference between the tendency to rust, between a bar at rest, and a bar laid as a rail subject to "continual" motion, and states that a "railway bar of wrought iron, laid carelessly upon the ground alongside of one in the railway in use, shows the effect of rusting in a very different manner. The former will be continually throwing off scales of oxydized iron, while the latter is scarcely affected. This prop of dependance, to advocates of wrought iron, will be subject of deep reflection among men

of understanding, it being well known that wrought iron rails, in capacity, are small, and will not suffer much diminution by corrosion, before they would become dangerous for use, with heavy loads; and when laying long roads, a proportion of the rails must necessarily remain at rest a long time, subject, of course, to corrosion, before they can be subjected to that "continual" motion alluded to by Mr. Wood. And further, in the establishment of long roads, much of it must necessarily be on unsettled earth, where foundations are liable to yield, and require to be broken up for arighting; and if those foundations be so numerous as only three feet apart, the rails might remain for long periods in an unused state; they might also remain long unused in consequence of the falling away of embankments, or other damages occasioned by storms or otherwise, delays in winter, &c. &c. I have in my possession wrought iron which has been in close contact with earth only about four months, and is now incrusted and deeply indented with corrosion; and there are in the city bars of "cast iron," the lower surface of which is imbedded in stone, the upper surface exposed, which were placed in the situation they now are before the revolution in this country; were probably so placed about sixty years since, and are now, apparently, as free from corrosion as if they had not been exposed three months; even the corners remain perfectly square, and is a circumstance which goes far in justifying my assertion, that there were no good reasons for supposing but that the "Guard Rail" would last fifty, or even a hundred years.

In order further to establish the superiority of cast iron over wrought iron, I will quote a paragraph from the first American, from the second English, edition of "Wood's Treatise on Railroads," page 147, as follows: "Since cast iron superseded the use of wooden rails, it has been most extensively used in the construction of railroads; as usual in like cases, at its first introduction considerable opposition was made to its use; its brittleness and liability to break; its cutting the wheels when in the form of edge rails, and several other objections were urged against it; time and experience have, however, confirmed its utility and extirpated those prejudices, though its nature renders it liable to break when subjected to sudden blows."

The "Guard Rail," as now manufactured, not only remedies that evil, of liability to break, but, as any person of discernment will discover on examination, the "Guard Rail" would even be sustained by its guard fit for use, if from any cause the cast iron were, or could, in use, be cracked crosswise in many places.

At the same page Mr. Wood adds, "It is considered of paramount importance in the construction of a railroad, to form it of such materials as combine strength and duration with economy. Cast iron, while it presents a surface that opposes little obstruction to the wheels of the carriage, forms a substance which is also very durable, and resists the action of the wheels with great effect."

I have written much more than I intended when I commenced; the subject, however, when well understood, must be very interesting to capitalists who contribute in the establishment of railroads. When considering, that in this state alone, capital to the amount of full, or perhaps over, \$30,000,000 is incorporated, and proposed to be placed at the disposal of Directors for that object, and in some other states, perhaps, in an equal ratio, a correct understanding, therefore, not only by Directors, but by Engineers, on whom reliance for reasonable conclusions is placed, is very important.

And, if not deemed as intruding too largely on the columns of your Journal, I propose, in the next number, (other pursuits permitting,) to offer a few remarks in reply to the communication which appeared in the last number, on this subject, signed "U. A. B."

I am respectfully yours, R. BULKLEY.



SUPPOSED ORIGIN OF THE CORINTHIAN ORDER OF ARCHITECTURE.—The above woodcut represents the leaves of a plant called the Herb Bear's Breech, the leaves of which it will be observed are large and shaggy, and the artist has given it all that beauty of form which it is said, from the accidental circumstance of the pressure on the top, to have originated in the mind of Callimachus the idea of the Corinthian order of architecture.

"It was at first used by the ancients as an ornament to friezes and cornices, and at length to the other members of architecture, but is principally employed as the grand ornament of the Corinthian and Composite capitals. The Greeks used for this purpose the leaves of the cultivated acanthus (*acanthus mollis*), commonly called brank ursine, or bear's breech, from its shagginess, which grew spontaneously both in Greece and Italy. The Gothic architects and sculptors, on the contrary, have used the wild and prickly acanthus (*acanthus spinosa*), being smaller in its parts and more suited to the littleness of their styles of art. Although architecture has made the greatest use of the acanthus, yet the other arts have also adopted it as a chaste and splendid decoration. We find among the ancients, as well as among the moderns, various instruments, household furniture, and utensils, ornamented with leaves of the acanthus. These artists, in preserving the general form and character of the plant, have made their sinuosities and curves more or less prominent, to suit their purposes, and have thus given them a more sculpturesque effect. In the Corinthian capital they are executed with more fidelity and elegance: the whole plant surrounds with its aspiring leaves the vase or bell of the capital, as if attempting to lift up the abacus that covers the whole, they then turn down and form themselves into graceful volutes."—[Partington.]

STOCKING KNITTER.—The Lancaster, Pa. Miscellany notices the invention of Mr. McMullen, of Huntingdon county, in that state, of a machine of the above name. It is described as being turned by a crank, and requiring about as much power as a small hand organ. It is capable of performing the work of six expert knitters, and adapted to the knitting of wool, cotton or silk.

NOVEL MODE OF PRESERVING HUMAN REMAINS.—M. Barruel, an eminent French chemist, boasts of being able to extract iron enough from the blood of a deceased person to strike a medal the size of a 40 franc piece. "He that hath the ashes of his friend," says Sir Thomas Brown, "hath an everlasting treasure." What would the learned author of the *Hydriotaphia* have said had he known the possibility of possessing iron relics?—[Medical Gazette.]

Ballingall's Improvements in Ship-Building.
[From the London Mechanics' Magazine.]

It is now upwards of twenty years since Sir Robert Seppings introduced into the Royal Navy various improvements in ship-building, which are universally allowed to have imparted great additional strength, safety, and durability, to our ships of war: yet, to use the words of Mr. Knowles, (*Inquiry into the Means which have been taken to preserve the British Navy,*) such is "the jealousy incident to human nature, in properly appreciating and applying the inventions of others, or the indolence of the mind in not bringing itself to examine new methods or combinations—these improvements, while they have been eagerly grasped by foreign nations, are but slowly introduced in the ships of our merchants, and, with an apathy hardly to be credited, are totally neglected by the first trading company in Europe (the East India Company)." The advantages of the improved system, however, are so manifest and indisputable, that all that was wanting to bring it into general use, in the mercantile navy, was, that some influential individual connected with shipping should take it up—should make it his business to promote its adoption, not only by his own example, but by pressing it in every possible way on the public attention—should do, in short, for the merchants' yards, what Sir Robert Seppings has done for the King's. We are happy to say that such an individual has at length been found in Mr. Ballingall, the author of a very clever and intelligent work, which we have now before us, entitled "*The Mercantile Navy Improved.*"* Mr. Ballingall has brought to the task he has undertaken, not only all the weight of an official situation of considerable prominence, but great practical experience, combined with what seldom accompanies it in men of his class, a very earnest and clear-sighted desire of improvement. He candidly acknowledges that "the greater part" of the alterations in construction which he proposes to have adopted in merchant ships, are already "in practice in the Royal Navy;" but he has at the same time enhanced the utility of these alterations by so many new suggestions, and added so many valuable contrivances, entirely his own, that he has a fair claim to be considered as himself an improver of the first order.

We cannot undertake to give within the limits to which we must needs confine ourselves, the whole details of Mr. Ballingall's system; but we shall endeavor to place in a distinct point of view before our readers, two or three of its more important features.

1. *The filling in of the timbers*—that is, bringing the ribs or frames into one compact body up to the gunwale—claims, on account of the immense consequences dependent upon it, the first place in our consideration. A ship is but an arch of peculiar adaptation, and the strength of every arch is in proportion to the mutual dependance of the parts on each other; but, according to the ordinary mode of building merchant ships, not more than one-half the timbers have such a mutual dependance. Every alternate couple of ribs only is connected together, and the intermediate timbers (absurdly enough termed *fill-*

ings) are entirely unconnected with each other, resting only on the outer planking, without contributing, in the smallest degree, towards the support of the general structure. This loose and dangerous mode of construction has, at the instance of Sir Robert Seppings, been altogether abandoned in the construction of our ships of war. Every couple of ribs, without exception, is closely connected, and all the smaller interstices, as high as the floor heads, are filled in and caulked; in short, the bottom is converted into one compact solid mass, and that wholly exclusive of the outer planking. It must be evident that a ship thus constructed may sustain very considerable damage in her outer planking—lose actually a plank or two, or even her keel—and yet reach the place of her destination; while the loss of even a portion of a single plank or of the keel would be the destruction of a vessel built on the present mode. When water gets once past the outside planking of any ordinary vessel, nothing but the pumps can save it; and should these get choked, or the crew become exhausted in working them, (both very common cases,) down she must go. From numerous illustrative instances adduced by Mr. Ballingall, of the advantage which ships of war possess over merchant vessels in this respect, we quote the following:

"On or about the same ledge of rocks on which the *Wolf*, sloop of war, struck, and lay fast for two nights and a day, in March, 1830, at the back of the Isle of Wight, the vessel at the time she struck going at a considerable rate through the water, at the very top of high water of a high spring tide, and with a considerable swell on, and which vessel was got off again and is now in the East Indies, having been dragged over the rocks for half a mile by assistance from Spithead, the vessel beating very hard upon the rocks with the lift of the sea all the time, the *Carn Brea Castle*, free trader to India, was lost only a few months before, having got ashore under more favorable circumstances for getting off again. What could this be owing to? The ships were nearly, I believe, of similar tonnage. The answer is plain and obvious. The *Wolf* had a solid bottom of 15 inches thick at the keel, being 12 inches of timbers, and three inches of outside plank, without allowing her to have had any ceiling. The *Carn Brea Castle* would only have an outside bottom plank to protect her, of, I presume, 3 inches thick. Yet this vessel would have timbers of 12 inches thick, if no more, and a ceiling plank of, I also presume, 3 inches thick, making 3 inches more than the sloop of war, but neither of which were of the least use to her in keeping out the water. Had her timbers been close and her ceiling been caulked, she would have had one more protection than the sloop of war, viz. the ceiling plank, without taking any thing from her stowage, and the fair inference is that she would have been got off and preserved."—P. 97-99.

Mr. Knowles, in a letter to Mr. Ballingall, dated "Navy-Office, October 24, 1831," states that "the whole navy proves that the ships with solid bottoms have been more durable than they used to be when openings were left;" and he particularly specifies the case of the *Success*, which went ashore in Cockburn Sound, when "the whole keel was carried away, also the lower piece of stern, five feet four inches of the stern-post, four pieces of the dead wood, nine stakes of

the bottom, amidships, and many stakes in the bows, and yet this ship was floated off."

Sir Robert Seppings has justly the credit of introducing this practice into general use in the Royal Dock Yards; but when in office, he had himself the liberality to point out to Mr. Ballingall, in the model-room at the Navy-Office, the model of a brig called *The Lady Nelson*, which was built about 1790, under the directions of Admiral Schanks, on the principle of a perfect union of the timbers, and is now, after a lapse of thirty-two years, still running, and "tight as a bottle."

Mr. Ballingall thinks that "nearly all the vessels which have been lost by foundering and collision might have been saved, if the vessels had had solid bottoms;" and there can be no question that the loss of life and property from the neglect of this mode of construction is annually immense.

2. *Caulking the whole of the ceiling or inner planking of the vessel*, and thus making it water-tight. This is contrary to the practice pursued in the Royal Navy, and, we are induced to think, somewhat superfluous, but is strongly recommended by Mr. Ballingall, on the ground of its affording a double security against a leak. If this, however, be done, it will be naturally asked how any water, which may have got into the vessel from inboard, is to get to the pumps to be pumped out? The answer to this question brings us to Mr. B.'s third important improvement, which consists in

3. An improvement in the water-course, by means of what are called percolators:

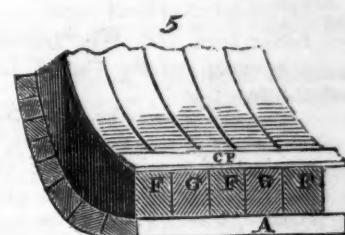
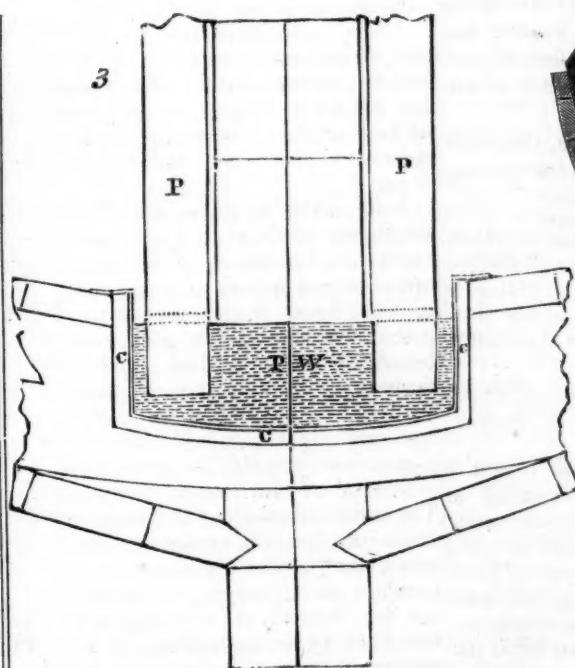
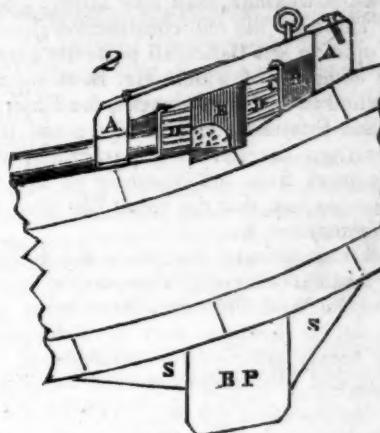
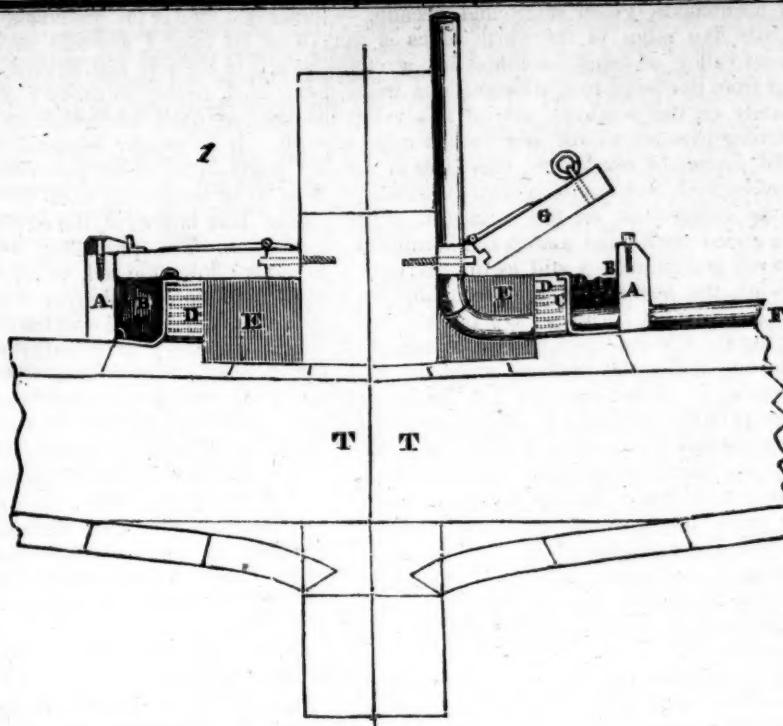
"I would propose a water-course to be led alongside the kelson on each side, as far forward and aft as may be required from the spring of the vessel raised above the level of the adjoining ceiling, by what I would call percolators, and the bottom of said water-course sunk at least an inch and a half or more below the level of the adjoining ceiling, to allow any water which might get into the vessel to drain off the ceiling into this water-course. There should be a gradual acclivity forward and aft, to cause the water to flow readily along the water-courses to the bottom of the pumps. This would be greatly assisted by the spring of the vessel. In men of war, East and West India ships, and, in general, in all vessels which either carry no cargoes, or their cargoes in packages, these percolators may be readily made of strong and thick oak battens, fastened to the ceiling close to the water-courses, and raised, say from 6 or 8 inches high, above the ceiling, with notches cut in the under edges or sides of them, similar to, I believe, the practice in the navy. These water-courses to be covered with limber boards, as at present, and the boards would not be required to be tight on the top; the boards to be sloped up to the kelson."—P. 20.

Mr. Ballingall does not propose these percolators simply because they obviate the objection before stated to the caulking of the ceiling, but for this further reason, that, whether the ceiling is caulked or not, they furnish a better means of conveying the water to the pumps, and keeping the pumps clear than any now in use, while at the same time they contribute considerable additional stability to the vessel. The explanations on this head are too long for quotation, but are to our minds entirely satisfactory.

The better to elucidate these different im-

* *The Mercantile Navy Improved; or a Plan for the Greater Safety of Lives and Property in Steam Vessels, Packets, Smacks, and Yachts, with Explanatory Drawings.* By James Ballingall, Manager of the Kirkaldy and London Shipping Company, and Surveyor of Shipping for the Port of Kirkaldy, 1832. Morrison, London.

ADVOCATE OF INTERNAL IMPROVEMENTS.



provements, we copy from Mr. Ballingall's book the accompanying illustrative sketches. Fig. 1 is part of a transverse section of a ship built on Mr. Ballingall's plan, and fig. 2 a continuation of that section (part broken off.) TT is the compact floor, with its bottom and ceiling planking. AA are guards fitted to protect the percolators from damage by shovels, &c. in taking out ballast or unloading a cargo. BB spaces filled with tanner's bark, charcoal, &c. or such substances as will allow the water to flow freely through them, and keep back sand, and so prevent the copper strainers, on the outer edge of the percolators, from being choked. CC the copper strainers (shown by double lines) on the outer edge of the percolators. DD the percolators, the lid or covering being open on the starboard side in midships, and shut on the larboard side and at the bilge receiver. EE limbers or receivers for water. FF the pipe which leads from the water-course down into the well prepared for it at the bilge. G shows the top of one of the main percolators opened; that on the other side is represented as shut. BP is the bilge piece. SS the water-courses, serving as supporters to the bilge piece. Fig. 3 is another transverse section, showing the alterations necessary to be made in the positions of the pump (P), pump-well (PW), and cistern (CC), in order to suit the new system. Fig. 4 is part of a longitudinal section of a merchant vessel, cut off at a line perpendicular to the outside of the keel. F is the floor, G the futtocks. It will be seen from this, that the outside planking is reduced at the garboard strake, A, to one-half the general thickness, by the rebate for the water-course; so that, supposing the general thickness to be, as usual, 3 inches, only one inch and a half is left between the inside of the ship and the element on which she floats. Fig. 5 exhibits, in section, the same part of a vessel, as constructed on Mr. Ballingall's plan. Here the floors, futtocks, or cross pieces (G), planks of the bottom (A), and ceiling plank (CP), form one complete mass, and present a substance of $1\frac{1}{2}$ inches, (instead of $1\frac{1}{2}$!) to withstand all accidents.

Among the subordinate advantages attend-

ing this improved system of ship-building, there are two which are particularly deserving of notice: one is the greater security from fire which it affords, in consequence of all the vacancies, which at present act as so many funnels to the flames, being filled up; and the other, the protection obtained from vermin, in consequence of there being no harbor left for them between the timbers and the inside and outside planks.

Various objections to the system will naturally suggest themselves to the minds of practical men; it is certain, also, that the improvements which it embraces are not equally applicable to all merchant ships: but before any ship-builder or ship-owner rejects it on either account, we would earnestly advise him to send for Mr. Ballingall's book, where he will find nearly every possible objection very frankly discussed, and every modification, which particular circumstances may call for, provided for with great intelligence and ability.

We perceive, from a letter which Mr. B.

has published, from Messrs. Ogilvie & Crichton, of Leith, the builders of the Royal Adelaide, steam ship, (one of those which ply between London and Edinburgh,) that she has been built, "in most respects, on the plan now recommended," and that it is the intention of the company to which it belongs to adhere to that plan "in any vessels which they may hereafter build." We trust that so judicious and spirited an example will not be long without numerous imitators.

Mr. B.'s book contains, also, instructions for rendering vessels, already built on the present plan, more secure at a cheap rate. He particularly recommends a revival of the plan of placing a doubling on ships, as was proposed as far back as 1792, by Mr. Snodgrass, surveyor of shipping to the East India Company. Mr. S.'s plan was, "that no ship should have a thorough repair; but instead of this, that its bottoms and upper works should be doubled with three-inch oak plank, from keel to gunwale, and strengthened with knees, standards, and even iron

riders, if necessary—all which might be done at a small expense." Mr. S. thought that ships so repaired would "be stronger and safer, and be able to keep the seas longer in the worst weather, than new ships," (that is, new ships on the old construction;) and in this opinion Mr. Ballingall perfectly concurs. The company of which Mr. B. is manager have had two of their smacks, the Enterprise and the Fifeshire, thus doubled; and it appears from the following paragraph, which we extract from the *Scotsman* of the 28th November last, that the result has been most satisfactory:

"We understand that since the Kirkaldy and London Shipping Company's smacks, Enterprise and Fifeshire, have been fitted with double bottoms, they have frequently been deeply laden—have encountered very stormy and tempestuous weather—and were both at sea during the late very severe storm on the 10th ult., when so many vessels were wrecked, and have not admitted a drop of water through their bottoms or sides."

AGRICULTURE, &c.

[From the *New-York Farmer*.]

THE SEASON.—In this vicinity, and, as far as we have been able to learn, in other sections of the country, the season is from ten to fifteen days earlier than the last. The weather has not been only mild, but is now become dry. Farmers and gardeners have had a fine season to get their work advanced.

It is, we believe, a general remark, that a forward April is not followed with a fruitful season.

The following article contains so much practical information, and so methodically presented, that we can not delay in giving it to our readers. It forms a part of the proceedings of the New-York State Agricultural Society.—[Ed.]

Letter from Dr. Wm. Darlington, of Pennsylvania, on the Use of Lime in Agriculture.

WESTCHESTER, (Penn.) December 17, 1832.
Dear Sir,—Your letter, containing a number of queries relative to the operation and utility of *Lime*, in the processes of agriculture, was received in the early part of June last: but as I have been much engaged during the past summer, with duties which required all my attention, and as your letter intimated that answers furnished "any time during the present year" would be in season for your purposes, I have taken the liberty to postpone my reply until now.

I proceed, then, with great pleasure, to furnish you with such facts and remarks as my opportunities for observation have enabled me to offer. With a view to render the answers more explicit and satisfactory, I will annex them, *seriatim*, to your several inquiries.

Query I.—"Upon what lands does lime operate most beneficially:

1. In regard to geological formation,—as primitive, transitory, secondary, and alluvial?
2. In reference to the soil,—as sand, clay, lime, and vegetable matter?
3. As indicated by natural growth of timber and plants?"

Answer.—My residence has always been in a primitive region, and my observations very much limited to agricultural processes in soils upon that formation. The prevailing rock

here is gneiss,—with occasional beds, or veins, of hornblende, green stone and scenite.—About five miles to the north of us is the great valley of transition limestone, stretching from northeast to southwest; and immediately on the southern side of this valley, running parallel with it, is a broken ridge of hills, formed of mica slate, with beds of serpentine rock and hornblende on the side next to the gneiss rock, on the southeast. Over the gneiss rock, and among the hornblende, the soil is generally a stiff loam; and there, I think, the best effects are perceptible from a given quantity of lime. On the soil overlaying the schistose rocks, the good effects of lime are sufficiently obvious, under the management of skilful farmers; but the benefits seem to be less permanent. On the serpentine rock the soil is extremely sterile, and neither lime nor barn-yard manure can be used with much advantage. In the limestone soil of the great valley, where one would suppose it was already redundant, lime is used with advantage; and much heavier dressings are put on, than in the adjacent districts. I cannot furnish the *rationale* of this practice; but I believe the fact is established, that more lime is required to produce the same beneficial effect upon soils resting on limestone rock, than upon those overlaying gneiss, and perhaps some other primitive rocks.

I have had no opportunity to witness the effect of lime upon secondary and strictly *alluvial* formations; but the above circumstance has led me to suspect, that the *same quantity* of lime would not be so signally beneficial in secondary, as it is in certain primitive formations.

Lime, undoubtedly, has a good effect in soils which are *sandy*, even where sand predominates; but I believe its meliorating properties are most conspicuous in a *clay* soil, or rather in a *stiff loam*. A good proportion of decomposed vegetable matter adds greatly to the beneficial effects of lime; and hence our farmers are desirous to mingle as much barn-yard manure as possible with their lime dressings, and to get their fields into what is called a good sod, or turf, full of grass roots. Then a dressing of lime has an admirable effect.* The soils indicated by a natural growth of black oak, (*quercus tinctoria*), walnut (*juglans nigra*), and poplar (*liriodendron*), and those in which such grasses as the *poas* and *festuca* best flourish, are generally most signally benefitted by the use of lime. In short, I may observe, that lime has been found more or less beneficial in any description of soil, in this district. It is most so on hilly or rolling lands, where clay predominates,—less permanently so among the mica slate,—and least of all, on the magnesian rocks. The soil on these last is rarely worth cultivating.

Query II.—"What quantity of lime is applied to the acre, upon different soils, at a single dressing, and during a period of years?"

Answer.—The quantity of lime per acre, which can be used advantageously, varies with the condition and original character of the soil. Highly improved land will bear a heavier dressing than poor land. On a soil of medium condition, the usual dressing is 40

to 50 bushels per acre. A deep rich soil, or limestone land in the great valley, will receive 70 to 80 (and I am told even a hundred) bushels to the acre with advantage. On very poor land, twenty to thirty bushels per acre is deemed most advantageous to commence with. It is usually repeated every five or six years—i. e. every time the field comes in turn to be broken up with the plough; and as the land improves, the quantity of lime is increased. The prevailing practice here is to plough down the sod, or *lay*, in the fall, or early in the spring,—harrow it once, and then spread the lime (previously slacked to a powder) preparatory to planting the field with Indian corn. Every field, in rotation, receives this kind of dressing; and as our farms are mostly divided into about half a dozen fields, the dressing of course comes once in six years, more or less according to the number of the fields. Some enterprising farmers, however, give their fields an *intermediate* dressing, *on the sod*, after they come into grass; which I consider an excellent practice, tending rapidly to improve the condition of the land.

Query III.—"Is it applied in a caustic or an effete state?"

Answer.—It is usually obtained in a caustic state from the kiln,—deposited in heaps in the field where it is to be spread, and water sufficient to slack it to a powder is then thrown upon it. As soon as slacked it is loaded into carts, and men with shovels distribute it as equally as possible over the ground. It is generally considered best to put it on the ground whilst it is fresh, or *warm*, as the phrase is; and it is certainly easier to spread it equally while in a light pulverised state, than after it gets much wet with rains. I am inclined to think, too, it is better for the land, when applied fresh from the kiln.

Query IV.—"To what crops is it most advantageously applied, and at what season?"

Answer.—It is usually applied, as already intimated, to the crop of Indian corn, in the spring of the year—say the month of April. Occasionally it is applied, preparatory to sowing wheat in autumn. When used as a *top dressing*, on the sod, it is generally applied in the fall—say November. The prevailing impression is that it is most advantageously applied to the Indian corn crop; and hence the general practice. But the truth is, it is highly advantageous at any and at all seasons; and our shrewd old farmers have a saying,—"Get your lime on for your corn, if you can,—but be sure you get it on the land some time in the year."

Query V.—"How is it incorporated with the soil—by the plough or the harrow? and is it applied in any case as a top dressing to grass and to grains, and with what effect?"

Answer.—As already stated, after the sod is ploughed down for Indian corn, it is usually harrowed once to render the surface more uniform. The lime is spread as equally as possible over the field, and then the ground is well harrowed in different directions, in order to incorporate the lime with the soil. Soon afterwards, the field is marked out and planted with corn. The plough is rarely, if ever used, for the purpose alluded to. I have mentioned above, that lime is occasionally used as a top dressing for grass. It appears to be particularly beneficial to that crop; and answers extremely well when applied in that manner. The practice of applying it to Indian corn, as

* The yard manure is not usually mingled with the lime when the latter is first applied. The practice is, to lime the *Indian corn* ground, prior to planting that grain, on the inverted sod,—and, the ensuing spring, to manure the same field for a *barley* crop; or, to reserve the manure until the succeeding autumn, and apply it to the *wheat* crop. It is not well settled which of these is the better practice. Each has its advocates; but it is most usual to reserve the manure for the *wheat*.

above related, is, however, chiefly followed: and the application of a dressing to each field in rotation, causes as much labor and expense every year as our farmers generally are willing to incur. Lime has rarely been used as a top dressing to grain crops, within my knowledge.

Query VI.—“What is the ordinary cost per acre of liming, and the relative profits, in increased products, of a period of years?”

Answer.—Quick lime, at the kilns, usually costs twelve and a half cents per bushel. The farmers generally haul it with their own teams; and the additional expense depends, of course, materially upon the *distance*. It is frequently hauled by them a distance of 8, 10, and even 12 miles. The average, perhaps, is about 5 or 6 miles. It is delivered to me by the lime burners, (a distance of nearly six miles,) at 18 cents per bushel. At the rate of 40 bushels to the acre, the cost at 18 cents, would be \$7.20 per acre. It is difficult to estimate with precision the relative profits, in increased products: but I can safely say, from my own experience, on a small farm of middling quality, that two dressings of lime at the above rate, in the course of 8 or 9 years, have more than trebled the products of the land to which it was applied, both in grain and grass. It is to be understood, however, that the system of *ploughing only so much ground as could be well manured* was adopted at the same time. I may also observe generally, that the farmers of this district, (who are shrewd economists,) are so well convinced of the beneficial effects of liming, that, costly as its application seems to be, they are unanimous in sparing no effort to procure it. Lime has been found to be peculiarly favorable to the growth of pasture, when the farm is otherwise well managed; and as our farmers are mostly in the practice of feeding cattle, they resort to liming as an indispensable auxiliary to successful grazing.

Query VII.—“Is lime applied with yard manures, or earthy composts, and with what results?”

Answer.—I have already intimated that vegetable matters, and especially yard manures, are highly important in conjunction with lime. Both are valuable, even when used separately; but when *combined*, the effect is most complete. If to this be added that great secret of good farming, *viz.* to plough only so much ground as can be well manured, —the state of agriculture may be considered nearly perfect.

Lime is, in some instances, added to earthy composts, preparatory to distribution on the field; but it is doubtful whether the extra labor of this method is compensated by any peculiar advantages. It is not generally practised.

Query VIII.—“Is powdered limestone (carbonate of lime) applied to soils; and if so, does it induce fertility otherwise than by mechanically ameliorating their texture?”

Answer.—No instance of powdered limestone being applied to soils has come under my notice. I can, therefore, form but a very imperfect opinion of its utility. If it were even as beneficial as quick lime, (which I doubt,) I apprehend it could not be procured and applied with less cost and labor.

Query IX.—“On what soils, if any, in your neighborhood, is lime found to be inoperative, as a fertilizing application; and the cause of its failure?”

Answer.—There is no soil in this district,

deemed worthy of cultivation, on which lime is *wholly* inoperative as a fertilizer. On some sterile silty ridges, and on magnesian rocks, it has indeed but a slight effect; and even the benefits of barnyard manure are very transient. In low swampy grounds, also, unless they are previously well drained, the labor of applying lime is pretty much thrown away. There seems to be something in the constitution of magnesian rocks peculiarly unfriendly to the growth of the more valuable plants. Indeed, there are patches of the soil perfectly destitute of all vegetation. Repeated attempts have been made to cultivate the bases of our serpentine banks; but neither lime, nor manure, will enable the farmer to obtain more than a light crop of small grain. Neither clover, nor the valuable grasses, can be induced to take root and flourish in the ungenial soil. It is, therefore, almost universally neglected.

I have thus endeavored, (in rather a desultory manner, I confess,) to answer your queries according to my best judgment. If what I have furnished shall in any degree tend to make the subject better understood, I shall be amply gratified. With great respect, I have the honor to be, your obedient servant,

WM. DARLINGTON.

JESSE BUEL, Esq. Cor. Sec. &c.

Raising Horses, Cattle, and other Live Stock.
By SUFFOLK COUNTY. To the Editor of the New-York Farmer.

SIR.—As the season is approaching when we expect to increase and multiply our live stock, permit me to present to your readers some of the directions that are appropriate to the subject.

The eminent surgeon, Henry Cline, Esq. of London, has given the world his views, from which I glean the following summary of doctrine. The external form is considered an indication of the internal structure. On the size and soundness of the lungs the health and strength of the animal principally depend. The size of the lungs is indicated by the form and size of the chest, particularly its breadth. The head should be small, to facilitate the birth. According to the size of the animal should be the length of the neck, that it may collect its food. For strength and travelling, the muscles and tendons should be large. Mr. Cline supposes bones disproportionately large to indicate an imperfection in the organs of nutrition, and by no means to imply great strength.

Those breeds of stock are to be preferred that have a regular and pretty rapid growth. To be stationary or slow in growth, implies disease or disordered functions, and is seldom attended with beauty and compactness of form. Those breeds that have the property of growing are generally straight in their back and belly. Although we do not want much belly, yet gauntness or paucity of intestines bespeak a material defect. Hardy, healthy constitutions, arriving soon at perfection, not only in size but in fatness, prolificness, quality of flesh, lightness of offal, gentleness, as well as other properties, are to be brought into view.

Yours, &c. SUFFOLK COUNTY.
April, 1833.

Suggestions relative to Florists' Work for May.

By the EDITOR.

If in the field I meet a smiling flower,
Methinks it whispers, "God created me,
And I to him devote my little hour,
In lonely sweetness and humility."

This is considered the loveliest month in the year. Unanimous nature is not only clothed,

but is in her gayest attire; every color and form are displayed with the utmost taste to please and delight the eye. Animated nature is not only cheered but vocal with song. Who can refuse to join in the universal chorus? Whose mind is so constituted that it cannot be enlivened when the eye, the ear, and the smell are so richly regaled? Deep must be the trouble and corroding the cares of him whose vibratory chords are not struck into tune.

HOT-HOUSE.

AIR.—Plants in the hot-house require to be accustomed to air by leaving the sashes down in the day time, and sufficiently so in the mild nights, to prevent the air from becoming close and heated. They require to be well watered every day, and syringed as often as every other day.

RE-POTTING.—Messrs. Hibbert and Buist consider the present and the succeeding month, in preference to August, to be the most suitable time to re-pot hot-house plants. They give the following reasons. Fresh soil in August stimulates to a renewed action that the warmth of the weather will not sustain, and consequently assumes a yellow cast. Whereas, re-potted in the spring the increased vigor is sustained, and the wood is properly ripened.

GREEN-HOUSE.

OPEN EXPOSURE.—About the first of the month the more hardy plants should be taken out of the green-house. These plants, geraniums for instance, that are inclined to grow spindly, should be so placed that they may have as much light as possible. The plants generally should not be exposed to the sun all day, particularly if the pots are so situated as to become heated. Great care is requisite in watering, some requiring much more than others. Knowing their native country and their habitat is a great guide. Succulent plants require much sun, while others generally require but a little.

FLOWER GARDEN.

SOWING SEEDS.—Hardy annuals and biennials should be sown early in the month. Those exotics of warmer climates require to be sown about the middle of the month. Various kinds of perennial seeds should be put in the ground.

SHADE.—Tulips, hyacinths, anemones, and ranunculus, require to be lightly shaded while in flower.

DAHLIAS.—Tuberoses, and Amaryllis, should be planted early in the month, and carefully labelled.

DOUBLE WALL FLOWERS.—Being partially biennials they are seldom propagated by seeds, but by shoots, which should be about three inches long, and put in a shady situation.

ROOMS.

EXPOSURE.—Plants that have been in open airy rooms can with safety be turned out into the open air the first week in May. The more delicate ones, however, should be retained a week or two longer, according to the state of the weather. Judgment should be consulted, so that the air, the wind, and sun, should not greatly vary, at first, from what they were accustomed to in the rooms.

BULBS.—Those that have done flowering should have the pots laid on their sides to ripen the bulbs. In a week or two the bulbs ought to be taken out, dried, put in papers, and carefully marked.

GENERAL REMARKS.—Much attention should be given to saving seeds of flowers when ripe. A few of the best from the most healthy and vigorous plants are more valuable than many promiscuously gathered. Every florist, and every lady who cultivates, should keep a diary of her floral operations,—the time of flowering under ordinary or peculiar treatment, when turned out into the open air, the effects of the

air of the room, mode of propagating, and various other particulars. Such a diary would serve as a directory for future years, and would not fail of increasing the knowledge of plants.

NEW-YORK AMERICAN.

APRIL 27, 28, 29, MAY 1, 2, 3—1833.

LITERARY NOTICES.

MEMOIRS OF GEN. LAFAYETTE AND OF THE REVOLUTION OF 1830, by B. SARRANS, *Secretary to Gen. Lafayette*: New York; J. & J. HARPER: 2 vols.—The memoirs, of which we here have a translation, produced, as they are well fitted to do, a great sensation on their first appearance in Paris. The revolution of three days, to which Gen. Lafayette imposed a term, and hoped to consummate its aim and hopes by presenting *Louis Philippe* to the nation as the representative on the throne of republican principles, had already begun to retrograde when these volumes appeared. The Bourbon rather than the republican, the descendant of the legitimate race rather than the man of and from the people of the barricades, swayed the destinies of France; and already Lafayette, who was, after Lafayette, the great founder of Louis Philippe's throne, and Lafayette himself, were disregarded personages in the new system of politics. In this state of things, a volume purporting to recall the attention of the nation to the actual occurrences just preceding and succeeding the three days, and justifying its statements by reference to official documents, and to private and confidential interviews and discussions, could not fail to command general attention. Efforts have been made to discredit the authority of these memoirs, and the London Quarterly Review has recently affirmed that they were disavowed by *Lafayette* himself. So far as such disavowal, if made, may be construed as extending to the authenticity and accuracy of the documents and letters published in the work, we take leave to question that such was the purpose of *Lafayette*. He meant, we do not doubt, to exonerate himself from any imputation of having suggested or perhaps even wished the publication of these memoirs—for they tend to exalt his character and influence so much, that it would have savored of egotism that he should be privy to their appearance. But we have full confidence in the statements here made, and in the faithfulness with which events and important conversations are related. In this view, and because of the honor it does to Lafayette, this book will be popular with Americans.

BOYS AND GIRLS' LIBRARY OF USEFUL AND ENTERTAINING KNOWLEDGE, Vol. VI and VII. New-York, J. & J. Harper.—These two little volumes, prepared by Mr. Thatcher, whose Lives of the Indians, in a recent number of Harper's Family Library, was so well received, furnish from the same pen the leading traits of Indian character, and notices of the habits and pursuits of the Indians, in a style adapted to instruct while it interests the youthful reader. There are several engravings in each volume, which add to their value and ornament.

THE AMERICAN ORNITHOLOGY, by ALEX. WILSON; with seventy-six colored Engravings. Philad. H. HALL—N. Y. COLLINS & CO.—This recent edition of Wilson's beautiful work, has the convenience of presenting all the plates in a single volume of large quarto size, while the admirable biographies of the birds, with one of the author himself, by Mr. Ord, are given in three volumes, royal octavo. This was the pioneer work of American Ornithology; and the price at which it is afforded, fifty dollars, places it more within common reach, than the larger, more expensive, and more magnificent work of Audubon.

THE WORKS OF THE REV. ROBERT HALL, A. M.—vol. III.—N. Y. J. & J. HARPER.—This volume completes the publication of the works of this emi-

nent Divine—and in a style that does credit to the press whence it issues. In addition to Sermons and Letters of Mr. Hall's, we have here a Memoir by Dr. Gregory, of the life and career of his great friend. This tribute was to have been paid by Sir James Mackintosh, but death took him from the scene ere he had accomplished the undertaking, which friendship and admiration of kindred genius had led him to assume. A higher tribute can scarcely be paid by one man to another than Mackintosh, paid to Hall. In a letter published in the memoir, referring to a sketch which he, Mr. Mackintosh, had prepared of his own life, he says to Mr. Hall—"On the most impartial survey of my early life, I could see nothing which tended so much to invigorate and excite my understanding, and to direct it towards high though, perhaps, scarcely accessible objects, than my intimacy with you." Such praise, from such a quarter, is precious indeed.

Dr. Gregory's Memoir follows Mr. Hall, step by step in his career, from his being set apart for the ministry, his residence at Cambridge, at Leicester, at Bristol, to the closing scene in February, 1831. It speaks of him with affectionate admiration; but, withal, with discriminating praise; and seeks not to make him, what it is not given to man to be, faultless. The consciousness of great abilities often led Mr. H., as a disputant, into an impetuous and presumptuous course of argument, where victory, rather than truth, seemed to be the aim; and his great delight seemed to be to confound his adversaries. This habit, however, his biographer says, "never tempted him to trifle with the sanctities of religion." It is not only as a learned and eloquent clergyman that Robt. Hall is known. He was a friend to man's best interests as connected with political systems; and regarded those European governments, which trampled upon the rights of man, as "operating most fatally to the extinction of light and virtue." It was a permanent conviction, as forcibly expressed in his own words, "that he who is instrumental in perpetuating a corrupt and wicked government, is also instrumental in unfitting his fellow men for the felicity of the celestial mansions." Among, and indeed the very first of, his political publications, was an eloquent "apology for the Freedom of the Press," a pamphlet widely circulated in this country at the close of the last century. The soundness of his judgment, however, and the earnestness of purpose with which he had devoted himself to preaching the gospel, taught him the inconveniences to a clergyman of political celebrity; and he therefore soon receded, not from his principles, as the memoir justly distinguishes, or from the avowal of them in private, but from the further advocacy of them in public, and came to the conclusion, which we think so true and wise, "that the Christian ministry is in danger of losing something of its energy and sanctity by embarking in the stormy elements of political debate." His subsequent life was governed by that conviction; and of that life and its valuable fruits, these volumes furnish an enduring and faithful record.

THE NEW YORK SPORTING MAGAZINE, No. II. New York: C. R. Collier.—We are glad to find this second number so spirited in its execution. There are two good colored engravings of celebrated horses—one of *Birmingham*, winner of the Doncaster St. Leger stake in 1830, the other of *Priam*—with memoirs of both these horses. There is also an amusing and spirited sketch of fleshing a young bull-pup in Staffordshire. The papers too are varied, and all either useful, or amusing, or both.

ELEMENTS OF DESCRIPTIVE GEOMETRY, by Prof. Davies of Westpoint, of which we announced the publication by the Messrs. Harper last year, have been just issued in a second edition from the same press; and we need say no more to show the demand for this excellent text book.

THE PERSONAL NARRATIVE OF JAS. O. PATTIE; edited by T. Flint: Cincinnati, E. H. Flint; N. York, Peter Hill.—To those who delight in tales full of incident,—of perils among savage hordes, and encounters with ferocious beasts,—of wanderings in interminable forests, and exposure upon arid sands; or to those who, looking deeper than the mere interest in the scene of the moment, take pleasure in studying its effect upon the characters brought beneath their observation,—this remarkable narrative will prove highly interesting. The author—whose veracity is endorsed by Mr. Flint, to whom, we have Mr. F's express word for stating, that he is indebted only for a few verbal alterations and topographical illustrations—is a thorough backwoodsman,—"a plain, blunt man," who delivers his round unvarnished tale with an appearance of truth and simplicity that must at once obtain him credit, even while it makes his readers smile.

His father, who it appears distinguished himself as a subaltern in the last war, was induced by a reverse of fortune and domestic calamity, to leave St. Louis early in 1824 upon one of those hunting and trading expeditions which are occasionally starting from that place to Mexico. Young Pattie, then about twenty, made one of the party, which, from consisting of but a few in the first instance, gradually increased in number, until it amounted to one hundred and sixteen well armed and well mounted adventurers, skilled in the use of weapons and familiar with the dangers and resources of frontier life. It may give some idea of the sufferings, hardships and dangers which this party encountered, to mention, that what with exposure and accident, famine, fever, and deadly conflict with the Indians, there were but sixteen of its number surviving at the end of five years; and the majority of these either captives in New Mexico, or wandering, stripped of every possession, even to their arms, over a country where the face of every man was turned away from them as "infidel dogs," who had been justly punished for trying to spy out the nakedness of the land. For the general course of the narrative, we refer those desirous of becoming acquainted with the most striking peculiarities of life in the wild regions traversed by the Messrs. Patties, to the book itself; but we have marked a number of passages, which, for the bold situations they exhibit, and the thrilling interest they excite, are hardly excelled even in the most highly wrought works of fiction.

What, for instance, can be more animated than the following account of a midnight attack from a bear, with the melancholy consequences of his ferocity:

We came to water, and encamped early. I was one of the guard for the night, which was rather cloudy. About the middle of my guard, our horses became uneasy, and in a few moments more, a bear had gotten among them, and sprung upon one of them. The others were so much alarmed, that they burst their fastenings, and darted off at full speed.—Our camp was soon aroused, and in arms for defense, although much confused, from not knowing what the enemy was, nor from what direction to expect the attack. I still stood at my post, in no little alarm, as I did not know with the rest, if the Indians were around us or not. All around was again stillness, the noise of those in pursuit of the horses being lost in the distance. Suddenly my attention was arrested, as I gazed in the direction from which the alarm came, by a noise like that of a struggle at no great distance from me. I espied a hulk, at which I immediately fired. It was the bear devouring a horse, still alive. My shot wounded him. The report of my gun, together with the noise made by the enraged bear, brought our men from the camp, where they awaited a second attack from the unknown enemy in perfect stillness. Determined to avenge themselves, they now sallied forth, although it was so dark, that an object ten steps in advance could not be seen. The growls of the bear, as he tore up the ground around him with his claws, attracted all in his direction. Some of the men came so near, that the animal saw them, and made towards them.—

They all fired at him, but did not touch him. All now fled from the furious animal, as he seemed intent on destroying them. In this general flight one of the men was caught. As he screamed out in his agony, I, happening to have reloaded my gun, ran up to relieve him. Reaching the spot in an instant, I placed the muzzle of my gun against the bear, and discharging it, killed him. Our companion was literally torn in pieces. The flesh on his hip was torn off, leaving the sinews bare, by the teeth of the bear. His side was so wounded in three places, that his breath came through the openings; his head was dreadfully bruised, and his jaw broken. His breath came out from both sides of his windpipe, the animal in his fury having placed his teeth and claws in every part of his body. No one could have supposed that there was the slightest possibility of his recovery, through any human means. We remained in our encampment three days, attending upon him, without seeing any change for the worse or better in his situation. He had desired us from the first to leave him, as he considered his case as hopeless as ourselves did. We then concluded to move from our encampment, leaving two men with him, to each of whom we gave one dollar a day, for remaining to take care of him, until he should die, and to bury him decently.

The feelings of his companions recur so strongly to the deserted sufferer, that they return to him; and after carrying him a day's journey further upon a litter, the painful ceremony of leave-taking again ensues, and he is left to perish in this unfriended region.

A cavalry charge of Indians, like the one here described, must be 'a goodly sight' to look upon:

I do not think an eye was closed in our camp that night; but the morning found us unmolested; nor did we see any Indians before the sun was at the point spoken of. When it had reached it, an army of between six and eight hundred mounted Indians, with their faces painted as black as though they had come from the infernal regions, armed with fuzees and spears and shields, appeared before us. Every thing had been done by the Indians to render this show as intimidating as possible. We discharged a couple of guns at them to show that we were not afraid, and were ready to receive them. A party advanced towards us; but one alone, approaching at full speed, threw down his bow and arrows, and sprang in among us, saying in broken English 'Commandches no good, me Iotan, good man.' He gave us to understand, that the Iotan nation was close at hand, and would not let the Commandches hurt us, and then started back. The Commandches fired some shots at us, but from such a distance that we did not return them—In less than half an hour we heard a noise like distant thunder. It became more and more distinct, until a band of armed Indians, whom we conjectured to be Iotans, became visible in the distance. When they had drawn near, they reined up their horses for a moment, and then rushed in between us and the Commandches, who charged upon the Iotans. The latter sustained the charge with firmness. The discharge of their fire arms and the clashing of their different weapons, together with their war-yell, and the shrieks of the wounded and dying were fit accompaniments to the savage actors and scene. I do not pretend to describe this deadly combat between two Indian nations; but, as far as I could judge, the contest lasted fifteen minutes. I was too deeply interested in watching the event, to note it particularly. We wished to assist the Iotans, but could not distinguish them from the mass, so closely were the parties engaged. We withheld our fire through fear of injuring the Iotans, whom we considered our friends. It was not long before we saw, to our great satisfaction, the Commandches dismounted, which was the signal of their entire defeat.

Among other descriptions of animals, we find one of a singular breed of sheep:

Upon these we saw multitudes of mountain sheep. These animals are not found on level ground, being there slow of foot, but on these cliffs and rocks they are so nimble and expert in jumping from point to point, that no dog or wolf can overtake them. One of them that we killed had the largest horns that I ever saw on animals of any description. One of them would hold a gallon of water. Their meat tastes like our mutton. Their hair is short like a deer's, though fine. The French call them the *gross cornes*, from the size of their horns which curl around their ears, like our domestic sheep. These animals are about the size of a large deer.

And another, of a race of hogs, equally remarkable:

In these bottoms are great numbers of wild hogs, of a species entirely different from our domestic

swine. They are fox-colored, with their navel on their back, towards the back part of their bodies. The hoof of their hind feet has but one dew-claw, and they yield an odor not less offensive than our polecat. Their figure and head are not unlike our swine, except that their tail resembles that of a bear. We measured one of their tusks, of a size so enormous, that I am afraid to commit my credibility, by giving the dimensions. They remain undisturbed by man and other animals, whether through fear or, on account of their offensive odor, I am unable to say. That they have no fear of man, and that they are exceedingly ferocious, I can bear testimony myself. I have many times been obliged to climb trees to escape their tusks. We killed a great many, but could never bring ourselves to eat them.

An Indian's idea of baptism:

Mocho asked us, how we baptised our people? I answered that: we had two ways of performing it; but that one way was, to plunge the baptised person under water. He replied promptly, 'now there is some sense in that; adding that when a great quantity of rain fell from the clouds, it made the grass grow; but that it seemed to him that sprinkling a few drops of water amounted to nothing.'

A good shot:

We had scarcely made our arrangements for the night, when 100 of these Indians followed us. The chief was a dark and sulky looking savage, and he made signs that he wanted us to give him a horse. We made as prompt signs of refusal. He replied to this, by pointing first to the river, and then at the furs we had taken, intimating, that the river, with all it contained, belonged to him; and that we ought to pay him for what we had taken, by giving him a horse. When he was again refused, he raised himself erect, with a stern and fierce air, and discharged his arrow into the tree, at the same time raising his hand to his mouth, and making their peculiar yell. Our Captain made no other reply, than by raising his gun and shooting the arrow, as it still stuck in the tree, in two. The chief seemed bewildered with this mark of close marksmanship, and started off with his men. We had no small apprehensions of a night attack from these Indians.

These bows and arrows, however, though no match for the western rifle, are not to be despised as efficient weapons; and any one who is skilled enough in the noble sport of archery to drive the head of an arrow through an inch board at a reasonable distance, can readily believe, that what is stated below can be accomplished by more practised hands with the same weapon:

We had the merriest sport imaginable, in chasing the buffaloes over these perfectly level plains, and shooting them with the arrows we had taken from the Indians we had killed. I have killed myself, and seen others kill a buffaloe, with a single shot of an arrow. The bows are made with ribs of buffaloes, and drive the arrows with prodigious force.

Here, in five lines, is a complete picture of a whole race of Indians:

Here we met a band of the Grasshopper Indians, who derive their name from gathering grasshoppers, drying them, and pulverizing them, with the meal of which they make mush and bread; and this is their chief article of food. They are so little improved, as not even to have furnished themselves with the means of killing buffaloes. At sight of us, these poor two-legged animals, dodged into the high grass like so many partridges.

We have still many entertaining passages marked for extract, which are not here quoted, having already given more than our usual room to this single volume. The most amusing of these, perhaps, is one in which the band of hunters first come to tide-water, at which they were almost as much astonished as the followers of Alexander. They encamp upon the sand-bar of a Mexican river, and being flooded by the tide coming in from the sea in the night, which they mistake for a freshet, paddle their canoes to the shore, where, upon composing themselves to sleep, they are equally surprised to find themselves left high and dry by the retreating waters in the morning. We take leave of this volume with the persuasion, that Mr. Flint has done a service to the reading public in preparing it for the press. We could wish, however, that it had not been so wretchedly printed, and so full

of typographical errors, not to mention verbal ones, such, for instance, as the repeated use of "learned" for "taught." The author, who is said to be in need, would, in the existing rage for accounts of savage life, which Mr. Cooper's descriptions of it have perhaps created, be more likely to command a ready sale for his work abroad than at home; but we trust, that before a copy of the work is sent to England for republication, Mr. Flint will, for his own credit, revise the errors.

A COURSE OF LECTURES ON DRAMATIC ART AND LITERATURE, by Augustus William Schlegel; translated from the original German by John Black; Philadelphia, Hogan & Thompson.—The history of the drama, were it not that some of the most cultivated nations of antiquity were unacquainted with theatrical representation, would seem also to embrace the history of literature and civilization. But, while Herodotus, in treating of the customs of the ancient Egyptians, makes no mention of a theatre, and while the Persians and Arabians, among whom letters were so ardently cherished when Europe was wrapped in Gothic ignorance, possessed no national drama—it is evident that neither a flourishing state of the arts as among the first, nor a general taste for poetry as among the last, are essentially connected with theatrical production: especially as while those ingenious and remarkable peoples were altogether ignorant of the drama, a rude species of it has been found to prevail among the naked savages of the islands of the Pacific.

The modern drama, which only dates from the fifteenth century, (for Boccaccio in delineating the manners of his time, makes no mention of stage exhibition) may be considered rather as an entirely new creation than a revival of the ancient theatre; altho' the race of critics that have sprung up with it would subject the theatrical productions of later ages to the same rules which they insist regulated those of antiquity. But while the miracles of saints, and the sufferings of martyrs, exhibited at first in travelling wagons, and afterward in barns and hovels, betray a similar origin of what Schlegel terms "the romantic drama," to that of the classic, which had its birth in rude representations of the more elegant and poetical mythology of the ancients exhibited likewise upon carts that were transported from place to place—we see no reason why an entertainment that in both instances sprung from distinct though similar sources among separate peoples, and was modified among both by their peculiar conditions of society and different advances in civilization, should be subjected to rules of composition imposed by either. Schlegel himself makes light of the pedantic laws of the French critics upon the much contested point of the unities, and yields an animated preference to those writers who, like Shakespeare and Calderon, in defiance of the precepts usually attributed to Aristotle, (but which he denies to have been delivered by that philosopher,) follow the impulse of native genius. Of Shakespeare, indeed, he is the warmest encomiast, and although bringing every weapon in the armory of criticism to bear upon his plays, he is still keenly alive to that union of wonderful and varied powers which distinguishes the grand master of his line. He dwells with warmth upon the noble and tender impressions to be gathered from his plays—he delights with the enthusiasm of a kindred spirit in the blending of gigantic strength and insinuating loveliness in Shakespeare's poetry, and he shows his thorough qualifications for the task he has undertaken of criticising every master in the whole range of the drama, by his enlightened and heartfelt appreciation of one who unites the powers of all in himself. But the necessity of bringing this notice unexpectedly to a conclusion, prevents us from doing justice at present to a work of such rare value, and we must defer our comments to another opportunity.

SUMMARY.

The Legislature of New York, having been in session 120 days, and enacted 323 laws, terminated its labors at three o'clock Tuesday. Several of the most important bills, says the Albany Evening Journal, not having been finally acted upon, will become subjects for future legislation. Among these, is the bill relating to the non imprisonment law and the bill reducing the legal rate of interest to six per cent., which passed the House, but were not taken up by Senate.

AUDUBON'S BIRDS OF AMERICA.—It is with real satisfaction we state, that on motion of Mr. Speaker Livingston, in the assembly of this State, provision has been made in the supply bill for the purchase of a copy of Audubon's magnificent work on the Birds of America, to be deposited in the State Library. By the same bill, the trustees of the Library were also authorized to purchase a pair of Globes, of superior workmanship, deposited in the library by the ingenious manufacturer, the late Mr. John Wilson, of Albany.

DINNER TO CAPT. BACK.—The Montreal Gazette, in an animated account of the festivities of St. George's day in that city, at which Capt. Back and Dr. King were special guests, has the following:

The President now claimed a bumper to the health of the head of a government and country which was now in perfect union and friendship with our own. He had already alluded that evening to the people of the United States in language of praise, but the people of Canada never could forget the liberal, generous and humane conduct of that people last year towards the numerous British emigrants, who knew not where to put their heads, and must ever recur to it with unmixed satisfaction. They had been long in friendship with them, long may it remain so. "The President of the United States."—Three times three—Hail Columbia, and the Chorus in Euryanthe by the Bavarian brothers.

Meredith Ogden, Esq., rose, and said that being an American by birth, though he had resided in this city from manhood, he felt an honest pride in the institutions and prosperity of his native land. There never was a period at which the amity between the United States and England was stronger or more likely to last than at the present moment, and he felt happy at the reception which their distinguished guests had received from his countrymen in New York: he knew well they fully entered into the humane intentions of the expedition, and he felt convinced that there was no place where the enterprise was more laudably encouraged and the success of it more deserved than in the city of New York.

MUNIFICENT CHARITY.—Col. THOMAS H. PERKINS, of Boston, has presented the following donation to the New England Asylum for the Blind. Truly the spirit and liberality of such conduct is above praise.

I give the House in which I reside, as a permanent Asylum for the Blind, upon the conditions expressed below. As the house is fifty feet square, and the adjoining land contains nearly eleven thousand feet, it will furnish accommodation for all the persons who may be thrown upon our community at one time; and as the stables are of brick, and substantially built, they may, if required, be converted into dormitories. The conditions I annex to the gift are as follows, viz:—The house and land shall always be occupied as an Asylum for the Blind; and in case the present mansion should be destroyed by fire, it shall be rebuilt for the same purpose; or in case it is not rebuilt, within three years after being destroyed, the land shall revert to my heirs at law.

I value the Estate at \$30,000; but as a house, whatever be its value, is but of comparatively little use without the means of supporting those who are to inhabit it, my second condition is, that \$50,000 shall be raised to form a fund for the support of the establishment; hoping that it may be increased by donation hereafter, by those who are at present unable to afford their aid. Another condition I shall exact by the terms of the deed, which I shall give, is, that in case the corporation for the blind should cease, the estate shall revert to my heirs at law;—thereby making it obligatory upon posterity to keep up the establishment, to avail itself of my donation.

The munificence of Bostonians towards their public institutions, whether for education or for charitable uses, is proverbial; but, so far as this city is con-

cerned, not at all—we grieve to say it—contagious. We remarked on Saturday, the noble donation by Col. Perkins to the Asylum for the blind. We now find by the Boston Daily Advertiser of Saturday, that "the Hon. JONATHAN PHILLIPS, son of the late Lt. Gov. Phillips, has authorized the subscription of \$5,000, towards meeting the Fund proposed to be raised as the condition of Col. Perkins's donation to the Institution for the Blind."

WESTPOINT.—The following list comprises the names of all the visitors appointed to attend the annual examination in June next. We have heard, however, with regret, that Mr. Washington Irving, and Gen. Lewis, of this State, have both declined the appointment.

MASSACHUSETTS	.... Rev. Mr. Leland, James Russell, Esq.
RHODE ISLAND	.... Gov. Fenner.
NEW YORK	.... Washington Irving, Esq. Gen. Morgan Lewis, Gen. E. Root, Gen. Van Rensselaer, Gov. Yates, Perley Keyes, Esq. Hon. M. Dickerson.
PENNSYLVANIA	.... Col. C. Banks, Hon. I. R. Burden, Hon. T. H. Crawford.
DELAWARE	.... James Rogers, Esq.
MARYLAND	.... Wm. S. Heath, Esq.
VIRGINIA	.... Hon. Mark Alexander.
KENTUCKY	.... W. Pope, Esq.
GEORGIA	.... Hon. J. Forsyth.
TENNESSEE	.... Rev. C. Coffin.
OHIO	.... Hon. Thor. R. Ross.
MICHIGAN	.... John Norwell, Esq.
U. S. ARMY	.... Gen. Fenwick, Col. Bankhead.

THE FRENCH TREATY.—*Draft of the United States Protested.*—A draft drawn by the United States Government on the Government of France, for the first instalment of the indemnity, agreed by treaty to be paid by the latter, for spoliations committed on our Commerce, has been protested. The amount is about Nine Hundred Thousand Dollars. The draft was at sight and negotiated here to the Bank of the United States. Protested in Paris, the agents of the Bank there, Messrs. Hottinguer & Co. interfered for the honor of the Bank and paid the amount.—[Courier & Enquirer.]

Commodore Porter.—This gentleman has been dangerously ill. He writes to a friend in this city—"I have been exceedingly sick for some time past. I have just crept from the edge of the grave." It seems that the place of his abode is very unhealthy. He mentions in his letter, that, from his window, he sees a succession of corse, borne to the grave, and at the moment of writing, forty or fifty unburied bodies were lying in his view at the place of interment.—[Washington Globe.]

Institution.—On the second Sunday after Easter, the 21st instant, the Rev. Benjamin C. Cutler was installed Rector of St. Ann's Church, Brooklyn, L. I.

Indiana again.—The Illinois and Missouri papers, of the first week in April, contain rumors of warlike movements of the Indians. In estimating these, due allowance must be made for the love of the marvellous, for easily excited apprehension, and in addition, for the convenience of another summer expenditure of a million of dollars. All rational conclusions are against the probability of Indian hostility, unless provoked and brought on by the whites.—[Cincinnati Gazette.]

[From the Courier and Enquirer.]

DESTRUCTIVE FIRE.—A fire broke out about four o'clock on Saturday afternoon, in the second story of the building No. 18 Gold street, which, from the combustible nature of the materials on which it had to feed, soon threatened an extensive conflagration. The upper part of the building which was occupied by Mr. Paulding as a carpenter-shop, was soon completely enveloped in flames, and extended in a short time to the lower story occupied by Mr. Foster as a packingbox making establishment, which with the upper part was soon consumed. It then attacked the adjoining building, No. 20, occupied by Mr. Bloomer as a carpenter-shop, which soon shared the same fate. From the narrowness of the street, and the difficulty of speedily bringing a supply of water to play upon the different buildings which caught fire, it communicated to both sides of the street, and extended its destructive ravages until about 6 o'clock P. M., when its progress was successfully arrested.

Two or three buildings in the interior of the block were consumed, one of which was an extensive smithy.

The extent of the loss is not as yet possible to ascer-

tain, nor the amount of insurance. The place where these houses stood is now a pile of smouldering ruins, in which latent fires still continue to burn; and the street is completely blocked up with the fallen fragments. Many families have lost their homes and their all.

DESTRUCTIVE FIRE.—*Four blocks of Buildings destroyed—Forty Horses burnt to death.*—We have the painful duty to record one of the most desolating conflagrations, with which our city has ever been afflicted. The fire commenced about 11 o'clock, last night, in the extensive stables of Messrs. Kipp and Brown, at the corner of Hudson and Bank streets, and before assistance could be rendered, upwards of forty horses perished in the flames. The block bounded by Hudson, Bank, Greenwich and Hammond streets, was burnt to the ground in twenty minutes from its breaking out; it speedily communicated to the adjoining block, taking a westerly direction, which very soon after shared the same fate. About this time the wind, which had been high during the day, now freshened into a gale—the flames soon crossed to the westerly side of Hammond street, and shortly after the entire row fronting on Perry street and extending all the way to Washington street, comprising altogether four squares was in a blaze.

Language can scarcely describe the scene of confusion and consternation at this moment—hundreds of families who had removed their furniture to places supposed by them to be secure, were now seen flying in every direction before the fury of the all-absorbing element: in many instances furniture, after being removed, was destroyed by the fire.

Through the dense cloud of smoke and burning cinders, children, half naked were to be seen running to and fro, crying for their parents, and parents in despair shrieking the names of their children!

The destruction of property during this appalling scene, must have been immense, and the extent of suffering and distress in consequence, incalculable. The fire had not been arrested at the time our informant left; but, from the abatement of the wind, together with a full supply of water in constant play, at the corner of Perry and Washington streets, it was supposed its progress would be effectually stopped at that point.—[Daily Advertiser.]

Thus far the Daily Advertiser of this morning. We now add all the authentic information we could gather on the spot.

The fire is supposed and asserted by many to have been the work of incendiaries—it can indeed, it is said, be proved to be so. In the upper part of the stables, six or seven men were sleeping, who all with great difficulty saved their lives—some by jumping from the window about 17 feet high, but no material damage was done: one colored man got his face dreadfully cut in descending. We understand Kipp & Brown are not insured at all—their loss is very great: 8 carriages were burnt, which cost them \$800 each, and 35 horses, worth upon an average from \$80 to \$100 each. Out of the 41 horses, only 5 were taken out alive, 2 of which are since dead.

The conflagration spread very rapidly. At the back of Kipp and Brown's stables was a warehouse, occupied as a store room for articles of a combustible nature, by Mr. John C. Morrison, chemist, which it is supposed contributed materially to spreading the fire. Nearly all the buildings in the rear were wooden, and in another building, immediately at the back, owned by Kipp & Brown, were 700 or 800 bundles of straw.

The conflagration extended thro' Bank, Hammond and Perry streets, and it is calculated that all the houses that stood on eight acres of ground are destroyed. There are various reports as to the number of these buildings, but we suppose from 130 to 150 at least. Among the chief sufferers is Mr. Moses Spiers, who owned a weaving establishment of some import. It is believed no human beings perished in the distress however of those who are burnt out will be great.

A BANK FAILURE.—Letters from Augusta, Geo. announce the failure of the Planters' and Merchants' Bank of that place. The nominal capital of this bank was \$350,000; of which, we understand, only a small portion had been paid in. The amount of its bills in circulation is said to be \$300,000.

[From the Baltimore American.]

LATEST FROM RIO DE JANEIRO.—The brig Sultana, Willis, arrived at this port yesterday in fifty-five days from Rio de Janeiro, which place she left on the 24th of February. Captain Willis informs us that prior to his sailing, two English ships had arrived at Rio de Janeiro, having on board about seventy persons whom they had picked up at sea. From their statement, it appeared that the British ship Britannia, bound from England to Van Dieman's Land, with upwards of two hundred convicts on board, accidentally took fire at sea, while the mate was drawing liquor from a cask in the run, and burned to the water's edge. More than a hundred persons, men and women, perished in the flames. After the vessel took fire, the crew and some of the passengers constructed rafts, on which about seventy embarked, and were fortunately saved from a watery grave by the timely approach of the two vessels above alluded to. On their arrival at Rio de Janeiro, a subscription was opened for the relief of the sufferers, and about \$4000 had been raised when the Sultana sailed.

It will be recollect that the wreck of a burned vessel was fallen in with some time since, by the ship Martha at New York, with a number of dead bodies floating near it. Among the surmises then made as to the identity of the ship, was one, that the wreck was that of a convict ship from England. It is probable that this is the same vessel.

[From the Newport Mercury of April 29.]

LATE FROM MATANZAS.—The ship Boy, Capt. Pittman, arrived here yesterday, in 13 days from Matanzas. Capt. P. informs that the Cholera was raging there to a frightful extent; the deaths were said to be upwards of 100 daily, but such was the state of alarm, that no accurate information could be obtained. All business was suspended, and the communication with the country was entirely cut off.

MATANZAS, April 12.—"The Cholera is raging here with much fury: it is impossible to form any correct opinion of its ravages, although I have endeavored to do so—I even question whether the Government itself has returns of the number of interments; of the number of cases I know it has not, for I heard one of the most eminent physicians say to day, he had not had time to report for a week past. Business is almost paralyzed, and all who could leave the city have done so; there are some cases in the country, some plantations have suffered severely.

" Two cargoes of slaves, (over 1000) arrived a few days since; one of them landed her cargo South of this, (Matanzas) on the other side, all of whom died, although landed in perfect health; and the other a few leagues to leeward of this, the most of whom are dead, and the residue dying.

" I received a letter to-day from Havana, dated the 10th inst. which states that the number of deaths by Cholera the day before, was only 10—but adds, that it had broken out on the estates to the southward, and unless soon checked, must ruin the planters.

MOBILE POINT, APRIL 10.—Arrived, U. S. transport schooner Motto, from Key West, with the detachment of the 4th Regt. U. S. Infantry, under the command of Major Glassell. I understand Major G. left Key West on account of the cholera having made its appearance at that place, the day before his departure on the 5th instant. Only a few cases, however, had occurred—and those not among the troops. Not finding quarters for the troops at Mobile Point, Major G., it is understood, will proceed for Pensacola the first favorable wind.

The U. S. sloop of war, FAIRFIELD, Capt. M'Cawley, arrived on Saturday afternoon from Norfolk, bound to the Pacific. She dropped down to the navy yard and saluted the flag of Com. Chauncey with the usual number of guns, which were immediately answered by the Franklin.

The following is a list of her officers:

Charles J. M'Cawley, Esq, Commander; James P. Wilson, 1st Lieutenant; John A. Cann, 2d Lieutenant; William L. Patten, Surgeon; John A. Bates, Purser; Frederick Peter Cheetard, acting Sailing Master; Edward Lloyd Hanelly, passed Midshipman; William C. Chaplen, do; Alexander R. Reve, Midshipman; John P. B. Adams, Vincent L. Williamson, Washington Gwathney, William P. Gamble, Midshipmen; S. W. Beale, captain's clerk; Lewis Parker, Gunner; William Hatch, Carpenter; John Bardine, Sail Maker.

Melancholy Death.—Died on Friday, the 5th inst. near Carrollton (Ill.) James Turney Esq. late Attorney General of the State of Illinois. Mr. Turney had recently become impressed with the solemn truths of Christianity; with glowing fervor, he had in a measure abandoned his profession to preach Christ crucified and him only. While recently engaged in the

performance of the act of baptising a brother who had a wooden leg, that had at its end a sharpened steel point, the latter unfortunately set the point of the leg with all its attendant weight on the foot of the deceased, which wounded it severely, and the wound ultimately mortified which produced his death.—[St. Louis paper.]

Disasters.—The schr. Metamora was stranded on the shore 25 miles from Apalachicola on the 25th ult. Part of the cargo found. The Captain and crew arrived at A. on the 10th inst.

The schr. Wakemaw, Bourne, of Falmouth, (Mass.) from New Orleans to Baltimore, was run down below Smith's island on the 24th inst. and sunk in 5 minutes. The Captain and crew were saved by the M. with nothing but what they stood in, and were put on board a pilot boat, and landed at Old Point, whence they arrived at Norfolk, in the steamboat Hampton.—[Gazette.]

[From the National Gazette.]

Britain Cooper, Esq. the Treasurer of the Girard Trust, in a letter addressed on Thursday evening to the City Councils, acknowledges the receipt of two millions of dollars from the Trustees of the Girard Bank, to be appropriated to the erection of the new Girard College.

Office of the Colonization Society, }
New York, APRIL 30, 1833. }

FOR LIBERIA.—The fine brig American will leave Philadelphia for Liberia on Wednesday, the 8th May. The New York City Colonization Society have determined to avail themselves of this favorable opportunity to send those who have applied and been received as fit persons for emigrants.

It is not the intention of the Society to send their emigrants away *empty*, but to provide them bountifully with clothes, provisions for their support, after their arrival in the Colony, implements of husbandry, and mechanic tools for such as have trades.

Donations for any of the above specified objects may be left at the office of the Colonization Society, in the rear Chapel of the Brick Church, or with Thos. Bell, Esq., 221 Front street. It is with pleasure that I acknowledge the receipt through L. H. Clark, Esq. of four large packages of *Temperance Documents*, from Mr. Delavan, of Albany. Also, a package of books, through the Rev. Dr. Milnor, from some unknown friend. Also, a package for John B. Russworm, editor of the Liberia Herald, from some unknown person. Also, from Charleston, S. C. a letter for "Abraham Rogers, Monrovia, Liberia." Also, through R. Yates, Esq. Treasurer of the New York State Colonization Society, some valuable jewelry, denominated by the donor "A Willing Gift," from an unknown lady of the Union.

ROBERT S. FINLEY,
Agent New York Col. Soc.

A great Fire.—MIRAMICHI is mentioned as connected with one of these tremendous fires which sometimes arise in the American forests, and spread havoc by circles of longitude and latitude. In the autumn of 1825, such a calamity occurred on the river Miramichi, which extended 140 miles in length, and in some places 70 in breadth. It is of little consequence that no wind should be stirring at the time; for, as Mr. M'Gregor observes, the mere rarification of the air creates a wind, "which increases till it blows a hurricane." In the present case, the woods had been on fire for some days without creating any great alarm. But "on the 7th of October, it came on to blow furiously from the westward; and the inhabitants along the banks of the river were suddenly surprised by an extraordinary roaring in the woods, resembling the crashing and detonation of loud and incessant thunder, while at the same instant the atmosphere became thickly darkened with smoke."

They had scarcely time to ascertain the cause of this awful phenomenon, before all the surrounding woods appeared in one vast blaze, the flames ascending from one or two hundred feet above the top of the loftiest trees: and the fire, rolling forward with inconceivable celerity, presented the terribly sublime appearance of an impetuous flaming ocean. Two towns, those of Douglas and Newcastle, were in a blaze within the hour; and many of the inhabitants were unable to escape. Multitudes of men on lumbering parties perished in the forest; cattle was destroyed by wholesale; even birds, unless those of very strong wing, seldom escaped, so rapid was the progress of the flames. Nay, the very rivers were so much affected by the burning masses projected into their waters, that in many cases large quantities of salmon and other fish were scattered upon their shores. Perhaps the plague of fire has never been exhibited, or will be, till the final destruction of this planet, on so magnificent a scale. Such disasters,

however, are repaired in a wonderfully short space of time; wooden cities being easily rebuilt in a country where timber is a weed. Weed, however, as it is, in a domestic sense, by means of exportation to English markets, timber has turned out a more valuable possession to New Brunswick than diamond mines could possibly have been to a country in her situation. Mr. M'Gregor gives us a very impressive picture of the mode in which timber is cut, hauled to the banks of rivers, and finally floated in the shape of rafts to Miramichi or other parts. The class of people engaged in these labors are called *lumberers*; they live like Indians in the woods; and a life of greater hardship than theirs, or labors carried on under circumstances of more romantic peril or difficulty, we do not suppose to exist any where on this planet.

[From the Montreal Gazette, of April 25th.]

DESTRUCTIVE CONFLAGRATION.—At a quarter before eight last evening, when the company were assembled for the Soiree Musical of the Messrs. Hermann, at the *British American Hotel*, the alarm of fire in that noble edifice roused the numerous inmates from their respective occupations, and before almost the alarm had reached the street, this splendid Hotel exhibited one mass of fire, extending its sway from one floor to another, presenting a scene of awful grandeur and desolation, scarcely paralleled in the history of Montreal. About thirty ladies and gentlemen had assembled in the large ball room to attend the Concert—the boarders and other inmates were engaged at tea, when the blaze of a lamp, suspended on the branch of one of the evergreens which formed the decoration of the passage at the Bachelors' Ball, and which have remained undisturbed since that period, communicated with the whole range of trees, and produced one instantaneous conflagration, which soon raged with the most destructive and irresistible fury through the entire building, leaving the inmates to secure their flight by ladders and through windows, possessed only of the clothes they wore, without even a moment's opportunity to secure any of their baggage or property. With difficulty the concert room was cleared, by taking the company down by ladders placed to the front windows, the flames rushing into the room from the burning evergreens in the passage, and prohibiting all egress by that channel. The scene of confusion that ensued, baffles all human description, and all attempts to secure property proved hopeless. Some articles of furniture were removed at the only favorable moment, but we regret to say, that many of the boarders lost all they possessed.

Fortunately for the cause of science and philanthropy, Capt. Back secured his baggage and scientific instruments, which had been so arranged as to be ready for his movement to Lachine that evening. The Messrs. Hermann & Co. who were about commencing the concert, lost every article of money, property and instruments they possessed, the results of a long and honorable professional career, including among the latter a violincello of peculiar power, and which cost nearly £200. Mr. Lidel Hermann, in making a desperate rush to secure his trunk, got himself dreadfully burned in the head and face, and is otherwise much injured, but was at last dragged away, and saved by the active interference of Mr. Kerrison of the John Bull Inn. A piano, loaned by Mr. Duff for that evening's entertainment, valued at £120, was also consumed. The houses of Messrs. Walker, Pothier, and Mondelet were occasionally on fire, but through the activity of the various engines, were speedily saved. All attempts to extinguish the fire in the *British American Hotel* having proved unsuccessful, the whole building became in forty minutes a heap of ruins.

The entire furniture of St. Paul's and the Grand Lodge of the District, including all the original records, &c. were totally consumed, as well as their charter, which was the oldest in the country.

The amount of insurance on the building, and the furniture in the house, belonging to Mr. Molson, was £8800, equally divided between the *Phenix* and *Atlantic* offices. Mr. Rasco's furniture was insured at the *Alliance* for £2000, and the furniture of the *Grand Lodge* at £200. The estimated loss is much above £9000. The *Theatre Royal* was insured at the *Quebec* and *Phenix* offices, but no damage has been done. The house of the Hon. Mr. Pothier was insured at the *Phenix* office, and those of Messrs. Walker and Mondelet were insured at the *Alliance*. Small amounts may be claimed for slight damages to those properties.

[From the Daily Advertiser of Saturday.]

The reservoir at 13th street when full, contains 20 feet depth of water. At the largest fires which have recently occurred, before that at the *City Hotel* on Thursday, the water has been reduced about 5 feet at ordinary fires, about two feet. At the fire at

the City Hotel, it was reduced 10 feet. On Friday morning, it had been so far supplied anew as to be raised to 16 feet, and the remaining 4 feet could be furnished in a very short time. The importance of this work, which was for a considerable time not only strongly opposed, but pointedly ridiculed, is now ascertained, and established.

MISCELLANY.

[From the Rochester Daily Advertiser.]

RELICS OF A MAMMOTH.—We were yesterday shown two animal teeth, of extraordinary size, which must have belonged to an animal whose species has for ages past become extinct. They were found in the town of Perinton, near Fullam's Basin, a few days ago, by Mr. Wm. Mann, who was engaged in digging up a stump. They were deposited about four feet below the surface of the earth. These teeth were in a tolerable good state of preservation; the roots begin to crumble a little, but the enamel of the teeth is in almost a perfect state. The teeth were the grinders, and from their appearance, were located in the back part of the upper jaw. The largest one, weighs three pounds and ten-ounces, measuring six inches lengthwise of the jaw, and three inches across the top: the root is about six inches long with several prongs. The other tooth is smaller. If we were to suppose this animal to have the same number of teeth that other animals commonly have and that the rest of the teeth were of the same proportions, as to size, the circle of the jaw from one end to the other, must have been six feet. Again, if we were to estimate the comparative size of this tooth with that of a large ox, and from thence infer the size of the animal to which this tooth belonged, we should probably find that its size was forty times larger than our largest oxen.

A forest of trees would soon be nibbled to their roots by a herd of such animals as these; and the western continent would prove a small enough pasture for a moderate number of them.

[From the Crawford (Pa.) Messenger.]

In the early part of last month a flock of Swans, 20 or 21 in number, were noticed floating about in the atmosphere, in Cassewago township, in this county, for several days in succession; the weather during all this time, was very thick and heavy. Like the bewildered mariner in a dense fog, they appeared utterly at a loss how to direct their course. Apparently overcome and exhausted by fatigue from the length of time they had been on the wing, they descended to the earth, in the open fields, &c. and many of them were easily captured by the citizens of the neighborhood, being unable to rise again. One or two were shot and found remarkably fat—each yielding feathers equal in quantity, and of very superior quality, to what is usually taken from 4 or 5 domestic geese. They are already, we are assured, quite docile, freely associating and feeding with the ordinary geese.

Roasting by Gas: Baking Bread for Spirits.—We have, already, says the London Literary Gazette, in several Nos. referred to and described these most ingenious inventions of Mr. Hicks, and have satisfied ourselves, by actual inspection, of their extraordinary applicability to the useful arts and domestic concerns of life. On Wednesday we lunched off pigeon and duck roasted by the apparatus delineated in our last: both were excellently cooked, the system uniting cheapness in fuel, convenience, the saving of time, and no mistakes. The bread we ate was from the manufactory at Pimlico, sweet and wholesome at the end of a week's keeping. We never saw any thing superior to the arrangements in this vast bakehouse. They have not yet begun to collect the steam and convert it into spirits: when they do, we shall farther notice these remarkable improvements.

M. Lamartine, the French poet and traveller, arrived at Beyruth, in Syria, on the 12th of December; having traversed the country during forty days on horseback, and received every hospitable attention from Ibrahim Pacha and the natives.

Mr. Wolf seems to have suffered much hardship; he was taken prisoner, and stripped of every thing, by robbers, who, however, abstained from personal injury. He mentions, in a letter to Abbas Mirza, Prince Regent of Persia, that on his return to Meshid, "I shall be accompanied by fifty Turcomans and Te-moore, whom I have convinced that slave-making is sin; and they will come with me, and take service in the army of your royal highness."—[Morning Watch.]

A short time ago, two men turning up the ground of Vaux la Petite, in the Meuse, near the old Roman road leading from Treves to Langres, by Naisium,

discovered several stone coffins, containing, besides some bones, remnants of armour, and lacrymatory vases. In an earthen vessel placed near the coffin, there were found 23 medals of silver, or mixed metal, and 70 of bronze. The silver medals bear the effigies of Augustus, Titus, Domitian, Adrian, Trajan, Antoninus Pius, Marcus Aurelius, Faustinus, Commodus, Severus, Julia Pia, Geta and Caracalla. The medals in bronze are of the Colony of Nismes, of Augustus, Nero, Domitian, Adrian, Trajan, Antoninus Pius, Marcus Aurelius, the Faustina, mother and daughter, Commodus, Crispinus, Septimus Severus, Julia Pia, and others. Some of the reverses are remarkable, such as *Victoria Germanica* of Marcus Aurelius, *Feconditas Auguste* of Faustina Mater. One in bronze is very rare—it is of Plautilla, the wife of Caracalla, with the reverse, *Venus Victrix*.

A professor of English has lately been added to the Academic corps of the University of Paris, and it has been directed that the English language shall hereafter form a branch of the regular course of education in the colleges and public schools in France. The French language is spoken by nine and twenty millions of natives; but split into upwards of seventy different dialects. Of the remainder of the French population, 1,140,000 speak German, 1,050,000 Celic, 188,000 the Basque tongue, about the same number Italian, and 177,000 Flemish.

The African Expedition.—The John Dougan, White, is arrived from Africa, and brought letters from Mr. Richard Lander, who reached Cape Coast Castle on the 7th of October, in 72 days from Milford. The vessels had touched at the Isle de Los, Sierra Leone, and other places, for the purpose of procuring supplies of fuel for the 2 steamers. Several cases of fever, had occurred, but no deaths in consequence had taken place. At Cape Coast every attention had been shown by Gov. MacLean, and the several officers there. Mr. Lander has been so fortunate as to procure Pascoe and the other natives who had accompanied him in his perilous undertaking to trace the mysterious Niger to its termination, and these persons are to proceed with him. He has been able to engage two individuals from the Ebbo country, one of whom is the son of a King in that district, and both of them not only speak but read English, and must, therefore, be of great utility. The iron steamboat Alburka is a most useful vessel, remarkably cool and dry, and sails exceedingly well. The expedition had experienced bad weather, having been six weeks in the rainy season, with severe lightning, which run down the sides of Alburka into the water, the iron acting as a conductor thereto. The ships were to sail from Cape Coast about the middle of October, and would not stop at any place; but proceed direct up the Rio Nunez into the Niger. Mr. Lander was in excellent health, and sanguine of ultimate success.—[English paper.]

According to the United Service Journal, the total number of troops in the citadel of Antwerp during the late siege, was 4937, and of these 561 were killed or wounded; an extraordinary proportion! The besieging army amounted to 65,450 men, and lost in killed and wounded, 803. men

A splendid statue, supposed to be of Theseus, has been recently discovered in one of the sewers of ancient Athens. It is about the size of Apollo Belvedere, and of the finest marble and best style of sculpture.

Roman and British Antiquities, &c.—Among the curious remains of antiquity found in making the foundations for the New London Bridge, and the excavations in Crooked Lane, and sold this week among the effects of the late Mr. Knight, the engineer, were a penny of Wulfred, Archbishop of Canterbury; two of Ethelred II., and five of Cnut; and also the lower jaw, and three other bones, of Peter of Cole Church, the original architect of London Bridge, found on removing the foundation of the ancient chapel.—[English paper.]

Ingenious Mechanism.—The Exeter Gazette mentions that Mr. Bradford, a country watchmaker, residing at Newton Abbott, (England), has produced several pieces of very curious mechanism. First, a machine representing a lamp, suspended by a small brass rod, hung to the ceiling, which constantly turns round, carrying a quantity of watches and two lights, and is made to work in different parts. The second is a brass ball, which runs a distance of 28 feet, 64 times in an hour—being upwards of 21,000 feet in 12 hours—without any individual knowing the cause of its going, except the mechanist and his family. The last is a timepiece, going without weights or springs, shewing the hours, minutes, days of the week, and days of the month.

Exhumation of Gustavus Adolphus.—A general public festival was held in Sweden, on the 6th day of November, 1832, to the memory of Gustavus Adolphus. That being the 200th anniversary of his death, great preparations were made throughout the country for its due celebration. As that renowned prince fell in defending the Protestant cause, the festival partook of a religious character, mixed, however, with circumstances designed to give it a military aspect. At Upsal, a granite obelisk was erected, and at Stockholm the remains of Gustavus were deposited in a splendid marble sarcophagus, in the presence of the King, Queen, and Crown Prince, who also attended Divine service on the occasion. The lead coffin, containing the mouldering dust of him who was once a king, was removed from the mausoleum of Charles XII. where it had lain from the period of his death, and examined, externally and internally, in the presence of a few select Ministers of State. The following is an account of its condition:

On the top are several inscriptions in Latin, cut in the lead, the most prominent of which contains these words.—"I have fought a good fight; I have finished my course; I have kept the faith; henceforth there is laid up for me a crown of righteousness, which the Lord, the righteous Judge, shall give me at that day." On opening the coffin, a shell of oak, without a cover, was discovered, in which the ashes of Gustavus appeared. The head had fallen from its place, and was destitute of flesh; but a part of the hair on the skull, and the mustachios, remained. The hands appeared to have been clasped over the breast; but none of the fingers remained entire. The whole body was reduced to a skeleton, and the bones dry, and much reduced in size. Tradition has said that a gold casket would be found, containing the heart of the warrior; as his surviving Queen had it during her life-time, suspended from the roof at the foot of her bed: no gold casket, however, appeared; but in its place, a velvet bag, lined with satin, containing a small quantity of mouldering dust, supposed to be the remains of that heart which feared not the dangers of the bloody field. A robe of elegant gold brocade, in which the body had been enveloped, was found in excellent preservation, as also the satin breeches of the Order of the Seraphim, which had been placed on the body. The soles of the shoes were perfect; but the rest of the shoes, supposed to have been of silk, could not be found. After a minute detail of the state of the body had been taken, the coffin was again closed, never to be re-opened till the trumpet shall sound and the dead hear the cry, "Awake, and come to judgment!"

The service of the day commenced by singing the psalm said to have been composed by Gustavus on the night before the battle of Lutzen, and sung by the army on the morning of that (to him) fatal day. It expresses the confidence of the Christian warrior in the power of the God of Armies; and the assurances of success, though they were but a handful in comparison with the multitude of the enemy. When the Bishop had concluded a funeral oration from the altar, eight Generals and eight Admirals conveyed the coffin up a flight of stairs to the Mausoleum, where the Sarcophagus had been placed, lowering it into this receptacle amidst the firing of musketry and cannon shots from all the neighboring forts.—[Commercial.]

Mr. Aicken, the able editor of the early parts of *Constable's Miscellany*, and a literary man of great assiduity and intelligence, sunk under the toil of precarious and life-consuming authorship at Edinburgh, on the 30th January. He was young; and, when we saw him last year in London, seemed to have many years of useful exertion before him.

Within twelve months of the appearance of the first symptoms of the unfortunate malady of the late Earl Dudley, it is said he invested more than £100,000 in American Bank Stock and Canal Shares, and the purchase of a tract of land in Upper Canada.

A gold coin, in good preservation, of the Emperor Valens, and a Roman sword, have been discovered in the newly excavated ground, about half a mile from Taunton, (Eng.) belonging to J. J. Champante, Esq.

A Happy Retort.—The obscurity of Lord Tenterden's birth is well known; but he had too much good sense to feel any false shame on that account. We have heard it related of him, that when, in an early period of his professional career, a brother barrister, with whom he happened to have a quarrel, had the bad taste to twit him on his origin, his manly and severe answer was, "Yes, Sir, I am the son of a barber; if you had been the son of a barber, you would have been a barber yourself."—[Lit. Gaz.]

The British External Empire.—EAST INDIES.—The countries subject to the dominion of the East India Company extend over upwards of 1,000,000 of square miles, and contain about 124,000,000 of inhabitants. With the exception of Nepaul, Lahue, the territories of Aimers and Scindia, and the Kabul sovereignty east of the Indus, the whole of India within the Ganges, containing about 123,000,000 of souls, is under their sway. In the Peninsula beyond the Ganges, they have several provinces south of Rangoon; viz. half the provinces of Martaban, the provinces of Tavoy, Ye, Zenasserim, and the Mergui Isles; also the province of Arracan, Assam, and a few petty adjacent states. The population of these last countries is about 300,000. Pulo Penang, or Prince of Wales Island, and Singapore, at the southern extremity of Malacca, are the Company's most flourishing settlements in that quarter. Penang was once a free port; Singapore still is so; and the rapidity of its progress, the promiscuous character of its inhabitants, and the great commercial activity which pervades it, are an emphatic reply to the allegation, that the inhabitants of the East require the compelling power of an overgrown monopoly to induce them to trade! In the five years previous to 1828, its population increased forty per cent. and amounted in that year to 14,885; only a very inconsiderable number being Europeans, the rest Chinese, Malays, and other natives of Indian coasts and surrounding islands. The jurisdiction of the Company also includes St. Helena, in the Atlantic, where a fortress and garrison are retained; and in the South of China, at Canton, is the Factory which conducts the Tea trade.

We can spare only a short space for observations on points of most pressing interest connected with the management of this mighty empire; but a very few remarks may give our readers an idea of them. It is plain, in the first place, that the part of the East India Company's charter which refers to trade must be thoroughly re-modelled. The notion of a monopoly trade, such as that with China still is, cannot, in these days, meet with many defenders. The monopolist is never an economical trader. He is lazy, difficult to be moved; and when he does move, it is very clumsily. The large ships of the merchant-kings are no more to be compared with a clean and smart Liverpool trader, than the lumbering fabric of Leadenhall-street, with the well arranged, economical counting-house of the enterprising capitalist. A good free trader is navigated at nearly half their charge; and upon a single voyage to Calcutta, gains about 70 days. Add to all this the expenses of a Canton Factory, together with the needlessly extravagant salaries paid by the Company to its servants, and we shall have no difficulty in accounting for the high price of tea in Great Britain, compared with any other part in the known world. This single article of consumpt has been said to cost upwards of £2,000,000 annually, over and above its retail price, in consequence of the trade being so conducted, or rather bungled; and we are certainly flattered at least £1,500,000. But we suffer far more than this actual deficit. Had our prices not been so extravagant, we might have conducted the tea trade of the whole western world; and assuredly, our ship-owners would find it better to assist us in an endeavor to destroy this monopoly, than to clamor in support of a pitiful timber trade with Canada! Reform is deeply necessary in the trade with Hindostan. Although nominally free, it is not so; nor will it ever be so, whilst the Company is allowed to trade. What we mean by free trade is this: it is a trade whose conditions are regulated by free competition amongst capitalists acting upon the common principles of profit and loss; and it is clear that no such trade can exist, when the market is ever likely to be pounced upon by one large capitalist who cares neither for profit nor loss; who often purchases for no other object than to make a remittance of surplus revenue; and whose acting servants are paid, not by a per centage on their profits, but in proportion to their purchases. We hold that the constant interference of these monopolists with the Indian markets is almost the sole reason of the continued inadequacy of the commercial intercourse of Britain with Hindostan; for inadequate, and miserably so, it still is, great though its progress under the free trader, since the last renewal of the charter, has unquestionably been;—and it is the surest proof of the accuracy of what we assert, that up to this hour, the company cannot show that it has been a gainer, in circumstances where private capitalists would have realized uncommon fortunes!—But we have yet another matter to settle with these sovereigns of India; one of higher importance than even the foregoing; a matter still more interesting to the human race

—the question as to the nature of their government. The fact is not to be disguised,—India groans under a military despotism. Our hold over the natives appears to be, that their fierce masters were harder than we, and oppressed them still more relentlessly,—a strange security for civilized and Christian Britain to adopt as the sheet anchor of her Indian dominions! No check against bad government; no power to obtain justice upon the provincial oppression; no opportunity of advancement, either commercially or morally, have we yet granted to the prostrate Hindoos. The Moslems, indeed, planted a conqueror's foot upon their necks; but, like the Romans of old, and the Russians in modern times, they dispersed themselves amongst the conquered, took part in their concerns, and communicated their own superior civilization. Our merchant-kings tremble at the bare name of civilization. Their wise men have talked even of a prohibition of Christianity.—They only vouchsafe to India collectors of a worse than tithe tax, and quarter upon her "spots of greenery" hordes of avaricious adventurers, actuated but by two moving principles—the determination to extract money, and the desire to return home.—The time for correction is at hand; and shall the destinies of South Eastern Asia tremble in the balance? shall we weigh ignoble fears, and corrupt desires, against the fates of those countless millions? Shall we refuse to India a population of industrious colonists, who would accept her as their home, and under whom liberty and civilization would assuredly grow? By such men would the Hindoo be taken up on the one hand, and accustomed to the securities of Europe; and on the other, an effective responsibility of some sort would be infallibly attached to every official within the broad Peninsula. The seeds of freedom would thus be sown, and the tree of goodly shadow would, in due course, arise. In that land, we can never look for a New England; its character and the proportions of its population forbid; but it may be a new country of peace, a new refuge for humanity, a new field for the unfettered exercise of human ingenuity, the spread of human happiness, and the exercise of the mind's best powers.—[Tait's Edinburgh Magazine.]

A Method of preserving Iron work from Rust, communicated by M. Payen to the French Institute, consists in plunging the pieces to be preserved in a mixture of one part concentrated solution of impure soda (soda of commerce,) and three parts water. Pieces of Iron left for three months in this liquid had lost neither weight nor polish; whilst similar pieces immersed for five days in the simple water were covered with rust.—[Recueil Industriel.]

National Customs.—At the death of the late Queen of Nepal, the whole population went into mourning by shaving their heads and cutting off their mustaches, and wearing neither shoes nor turban.

POETRY.

To the *Editor of the American*.

I do not remember any thing which has produced so pleasing an impression on my mind as the little story which is said to have been told by the late Dr. Godman to his friends, of the boy who was about to fall from rigging, and was saved only by the mate's impressive exclamation: "Look aloft, you lubber." The story and the application were somewhat in the style of Dr. Franklin, and would not have been unworthy of his fame. The following verses cannot claim the merit of the slightest originality, but their insertion will amply reward the author, if they recall the anecdote which prompted them, or enforce its beautiful morality.

LOOK ALOFT.

BY THE LATE JONATHAN LAWRENCE, JUNIOR.

In the tempest of life, when the wave and the gale Are around and above, if thy footing should fail— If thine eye should grow dim and thy caution depart— "Look aloft" and be firm, and be fearless of heart. If the friend, who embraced in prosperity's glow With a smile for each joy and a tear for each woe, Should betray thee when sorrow like clouds are arrayed, "Look aloft" to the friendship which never shall fade. Should the visions which hope spreads in light to thine eye, Like the tints of the rain-bow, but brighten to fly, Then turn, and th' tears of repentant regret "Look aloft" to the sun that is never to set. Should they who are dearest, the son of thy heart— The wife of thy bosom—in sorrow depart, "Look aloft," from the darkness and dust of the tomb. To that soil where "affection is ever in bloom." And oh! when death comes, in terrors to cast His fears on the future, his pall on the past, In that moment of darkness, with hope in thy heart, And a smile in thine eye, "look aloft" and depart!

The sentiments breathed in the above beautiful verses, which have been copied far and wide in the newspapers since they appeared originally in the American two years ago, make them not an unfit accompaniment here to the professional tribute to the worth of the writer, which is published below. But there is a fresh buoyancy of thought, a wild luxuriance of poetic feeling in those that follow from the same hand, which go at once to the heart, and call up a thrill of admiration and regret for the aspir-

ing young spirit that has so soon mounted above the sphere of its earthly ambition.

THOUGHTS OF A STUDENT.

Many a sad, sweet thought have I,
Many a passing, sunny gleam,
Many a bright tear in mine eye,
Many a wild and wandering dream,
Stolen from hours I should have tied
To mystic volumes by my side,
Given to hours that sweetly wood
My heart from its study's solitude.

Often when the south wind's dancing free
Over the earth and in the sky,
And the flowers peep softly out to see
The frolic Spring as she wantons by,
When the breeze and beam like thieves come in,
To steal me away, I deem it sin
To slight their voice, and away I'm straying
Over the hills and vales a Maying.

Then can I hear the earth rejoice,
Happier than man may ever be,
Every fountain bathes then a voice
That tells of its glad festivity,
For it bath burst the chains that bound

Its currents dead in the frozen ground,
And flashing away in the sun has gone,
Singing, and singing, and singing on.

Autumn hath serious hours, and then,
Many a musing mood I cherish,
Many a hue of fancy, when
The hues of earth are about to perish;
Clouds are there, and brighter, I ween,
Hath real sunset never seen,
Sad as the faces of friends that die,
And beautiful as their memory.

Love hath its thoughts we cannot keep,
Visions the mind may not control,
Waking as fancy does in sleep
The secret transports of the soul,
Faces and forms are strangely mingled,
Till one by one they're slowly singled,
To the voice and lip and eye of her
I worship like an idolater.

Many a big proud tear have I,
When from my sweet and wavering track,
From the green earth and misty sky
And spring and love I hurry back;
Then what a dismal dreary gloom
Sedes upon my loathed room,
Darker to every thought and sense
Than if they had never travelled thence.

Yet, I have other thoughts that cheer
The toilsome day and lonely night,
And many a scene and hope appear,
And almost make me gay and bright,
Honor and fame that I would win,
Though every toil that yet hath been,
Were doubly borne, and not an hour
Were brightly hued by fancy's power.

And though I may sometimes sigh to think
Of earth and heaven and wind and sea,
And know that the cup which others drink
Shall never be brimmed by me;
That many a joy must be untasted,
And many a glorious breeze be wasted,
Yet would not if I dared repine,
That toil and study and care are mine.

These lines were written at the early age of sixteen; when Mr. Lawrence having terminated his collegiate studies two years previously, was ardently engaged in that of the law: and strangely enough to say, in spite of the joyous and confident spirit they breathe, they were composed under alarming ill health and depression of spirits brought on by a too zealous devotion to the profession of which he promised to become so bright an ornament.

[FOR THE AMERICAN.] SONG—ROSALIE CLARE.

Who owns not she's peerless—who calls her not fair—
Who questions the beauty of Rosalie Clare?
Let him saddle his charger and wend to the field,
And though coated in proof, he must perish or yield;
For no falchion can parry, no corslet can bear
The lance that is couched for young Rosalie Clare.

When goblets are flowing, and wit at the board
Sparkles high, while the blood of the red grape is poured,
And fond wishes for fair ones around offered up
From each lip that is wet with the dew of the cup,
What name on the brimmer floats oftener there,
Or is whispered more warmly than Rosalie Clare?

They may talk of the land of the olive and vine—
Of the maid's of the Ebro, the Arno or Rhine;
Of Hours that gladden the East with their smiles,
Where the sea's studied over with green summer tales;
But what flower of far away clime can compare
With the blossom of ours—bright Rosalie Clare?

Who owns not she's peerless—who calls her not fair?
Let him meet but the glances of Rosalie Clare!
Let him list to her voice—let him gaze on her form—
And if, hearing and seeing, his soul do not warm,
Let him go breathe it out in some less happy air
Than that which is bless'd by sweet Rosalie Clare. H.

CHARADE.

Dear is my first when shadowy night is near,
But 'tis my second makes my first so dear;
My whole first in decency preserves,
And thus to be my second well deserves.

The following neat reply to the above enigma, which appeared the other day among our miscellanies, is from a distant correspondent:

My house is dear as shadowy night comes on,
But by its heart there sits a much loved one,
A wife, whose tenderness, whose low, sweet tone,
Makes dearer life and every thing I own;
It is to her each joy of home I owe,
She makes my house a peaceful lot to know;
Her, for her worth, most truly I may call
My first, my last, my second and my all.

METEOROLOGICAL RECORD FOR THE WEEK ENDING MONDAY, APRIL 29, 1833.
KEPT IN THE CITY OF NEW-YORK.

[Communicated for the American Railroad Journal and Advocate of Internal Improvements.]

Date.	Hours.	Thermo- meter.	Barom- eter.	Winds.	Strength of Wind.	Clouds from what direction.	Weather and Remarks.
Tuesday, Apr. 23	6 a. m.	52	29.87	E	moderate	{ SW E }	cloudy—rainy—at 8 a. m. barometer 29.90
	10	54	.82	SE—S	..	SW	cloudy—fair
	2 p. m.	64	.70	SW—ENE	..	SW and WSW	fair—cloudy
	6	62	.60	ENE	..	WSW	cloudy
Wednesday, 24	10	57	.73	..	..—gale	..	cloud'd horizon—gale in night
	6 a. m.	43	.95	NE	fresh	NE—(scuds)	cloudy and rainy
	10	44	30.07	N by E	..	..	..
	2 p. m.	44	.10	..	moderate	{ WSW NE }	..
Thursday, 25	6	45	.14	..	..	{ .. .. }	fair—upper haze from WSW
	10	44	.17	..	..	..	..
	6 a. m.	43	.20	WSW	..	W by S	..
	10	48	.24	WSW—SW	light	{ W by S SSW }	.. — { light cirrus clouds from WSW }
Friday, 26	2 p. m.	58	.20	S	moderate	W by S—WSW	.. —cloudy
	6	52	.19	S—SW	..	WSW to NW	cloudy—fair
	10	48	.19	SW	..	WNW	fair
	6 a. m.	45	.18	WSW—NNE	light	..	clear
Saturday, 27	10	52	.23	N	moderate	..	..
	2 p. m.	58	.23	..	..	..	fair—at 7 low bank of clouds (at W)
	6	58	.23	N by E	light	..	..
	10	50	.27	..	..	..	..
Sunday, 28	6 a. m.	43	.37	ENE	..	N by E	..
	10	50	.40	SSW	..—moderate	{ SSW NNW }	..
	2 p. m.	58	.37	S	moderate	..	.. —light haze from NNW
	6	53	.33	..	..	..	..
Monday, 29	10	48	.35	..	..	..	..
	10	47	.30	SW	..	..	..
	2 p. m.	68	.21	SW by W	..	..	..
	6	64	.18	..	..	..	..
Monday, 29	10	60	.18	..	light	..	..
	6 a. m.	56	.11	..	moderate	..	clear—light smoke
	10	65	.13	..	..	..	..
	2 p. m.	77	.07	..	..	..	..
Monday, 29	6	73	.01	..	..	..	..
	10	69	.04	..	..	..	..

Average temperature of the week, 54.

MARRIAGES.

On Thursday evening last, at St. Clement's Church, by the Rev. Mr. Bayard, FRANCIS WILBY, Esqr. to Miss ELIZABETH TRISON.

By the Rev. Dr. Macaulay, on the 30th April, JAMES McNAUGHEY, M. D., of Albany, to CAROLINA, daughter of Arch'd McINTYRE, Esq. of this city.

Last evening, by the Rev. Dr. Matthews, HENRY S. WYCKOFF, to ELIZABETH B., daughter of Henry Suydam, Esq. all of this city.

On Thursday, 25th instant, by the Rev. Francis M. Kip, EDWARD P. TORREY, to LOUISA MATILDA, daughter of the late Isaac B. Strong, all of this city.

Wednesday evening, by the Rev. Mr. Remington, MR. SAMUEL U. BERRIAN, of Rye, to Miss ELIZA ANNA PARSONS, of this city.

On Monday morning, at Newark, N. J. by the Rev. William T. Hamilton, WM. C. WALLACE, of Chatham, to HENRIETTA, daughter of the late Caleb S. Riggs, Esq. of the former place.

At Rome, Oneida County, on Wednesday, the 17th instant, by the Rev. Mr. Gillett, CHARLES C. YOUNG, of this city, to CHARLOTTE, daughter of George Huntington, Esq. of the former place.

DEATHS.

On Friday evening, after a short and painful illness, JONATHAN LAWRENCE, Jun.

Young, ardent, and aspiring, with a mind richly endowed by nature and improved by the most assiduous cultivation—of high promise in his profession, and endeared to a large circle of friends by a disposition the most cordial and companionable, Death could hardly have singled out a victim from among those of his age, whose fate would awaken a more general sympathy or whose loss inspire a deeper feeling of bereavement.

Although but recently called to the bar, Mr. Lawrence had already given evidence that his talents for public life were of no common order, while his strict attention to his professional duties and his general exemplary character inspired a confidence in those connected with him by the relations of business rarely accorded to one so young. Indeed, we are confident of being sustained by those fully capable of judging of his professional abilities, when we assert, that the New York bar has lost in him one of the most promising of its junior members. But it is only they who were familiar with his stores of general reading and rich resources of original observation, with his exquisite sensibility to the beauties of poetry, his playful humor, and chaste imagination, that can unite in the full feeling of regret that one whose literary talents must at some day have entitled him to be "remembered in the line of his land's language," should be forever withdrawn from the field of his hopes, and his promise, and bear with him to the grave the proud expectation that waited upon his young career.

And yet, had he lived, the seal that sets its loftiest yet most touching association to his character, had been wanting. The ennobling incidents of his death-bed-scene—his calm endurance of pain when it was so rapidly expelling life from his system—his Christian resignation to the fate that had so suddenly overtaken him—and, above all, his feeling but manly farewell to each of the young friends that crowded his dying chamber—would never have been impressed upon the hearts of others to hallow his name in their remembrance, and kindle the wish that has been so beautifully embodied by his own fervid pen—to

Like him, "when Death comes in terrors, to cast His fears on the future—his pall on the past—In that moment of darkness, with hope in the heart, And a smile in the eye, LOOK ALOFT and depart." H.

On Saturday last, in the 46th year of her age, ELIZA, wife of Professor McVICAR, and daughter of the late Dr. BARD.

On Tuesday afternoon, HENRY ASTOR, in the 80th year of his age.

On Tuesday morning, EDWARD SWORDS, youngest son of John EVERIS, aged 11 months and 9 days.

On Tuesday, April 30, RACHEL, wife of Samuel Jones, aged 27 years.

This morning, April 30, in the 61st year of his age, THOMAS C. MORTON.

On Saturday, after a long and painful illness, in the 41st year of his age, JOHN MCCHESEY.

At Portsmouth, N. H. MARY, widow of Jacob Sheafe, Esq. aged 82.

On Friday afternoon, GEORGE SPRENGER, in the 24th year of his age.

On Friday evening, the 26th inst. WILLIAM, son of William and Jane Ann Seymour, in the 13th year of his age.

This morning, of a lingering illness, Mr. OLIVER ELLSWORTH CORN, in the 32d year of his age.

This morning, April 30, at Perth Amboy, N. J. WILLIAM B. PATERSON, son of the late Judge PATERSON, aged 49.

At Demerara, of a lingering illness, JAMES H. BIBBY, Counselor at Law, in the 44th year of his age, son of the late Captain Thomas Bibby, of this city.

Another Worthy of the Revolution gone.—On the 4th of April, at his residence, in Cayuga County, Major BENJAMIN HICKS, aged 85 years. He was a man of excellent abilities and firm integrity, and served his country in arms during the whole war of the Revolution.

THE MECHANICS' MAGAZINE, NO. 4, FOR APRIL, is now ready. It is illustrated by 30 engravings on wood, and an autograph fac simile of a letter from LORD BROUGHAM. Among the contents will be found accounts of SEVEN AMERICAN INVENTIONS, besides all the best articles from European scientific periodicals.

* * The flattering assurances of support that the publisher has received, has determined him to give 16 pages extra in the numbers for May and June. They will consist of a reprint of "Mr. Babbage's excellent work on Machines and Manufactures," so arranged as to bind with the Magazine, or separate, as may suit the inclination of the subscriber.

Office 35 Wall-street.

THE TOWNSEND & DURFEE, of Palmyra, Manufacturers of Railroad Rope, having removed their establishment to Hudson under the name of Durfee & May, offer to supply Rope of any required length (without splice) for inclined planes of Railroads at the shortest notice, and deliver them in any of the principal cities in the United States. As to the quality of Rope, the public are referred to J. B. Jervis, Eng. M. & H. R. R. Co., Albany; or James Archibald, Eng. near Hudson and Delaware Canal and Railroad Company, Carbonado, Luzerne county, Pennsylvania.

Hudson, Columbia county, New-York, {

January 29, 1833.

SURVEYORS' INSTRUMENTS.

COMPASSES of various sizes and of superior quality, warranted.

Levelling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by E. & G. W. BLUNT, 154 Water street, corner of Maidenlane.

ENGINEERING AND SURVEYING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new: among which are an Improved Compass, with a Telescop attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also, a Railroad Goniometer, with two Telescopes—and a Levelling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes. WM. J. YOUNG,

Mathematical Instrument Maker, No. 9 Dock street, Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested.

Baltimore, 1833.

In reply to thy inquiries respecting the Instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I heartily furnish thee with the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Gravitation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy fr. end,
JAMES P. STABLER, Superintendent of Construction
of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

Germantown, February, 1833.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad.,
mly German and Norrist. Railroad

GRACIE, PRIME & CO., offer for sale, at 22 Broad street—

2 cases Gum Arabic
26 do. Danish Smalls, EFFF
10 do. Saxon do. do. Reduced Duty
100 bags Saltpetre
2 do. Gull Nails; 20 tons Old Lead
100 do. Trieste Rags, FF
6 boxes each 50 lbs. Tartaric Acid
6 do. each 25 lbs. do. do.
1 case 50 bottles Syrop de Vinaigre
10 cases White Hermitage; 20 do. Cotic Retic
10 do. Dry St. Ferry; 50 do. Bordeaux Gravé
20 do. Chateau Grille; 5 cases each 12 bottles Olives in Oil
8 bales Fine Velvet Bottle Corks
100 do. Bourton Cloves
30 do. Molieres Almonds
143 bundles Liquorice Root
4 bales Goat Skins
1 cask Red Copper, 1 do. Yellow do.DRY GOODS BY THE PACKAGE.
10 cases light and dark ground Prints
40 do. 3-4 and 4-4 colored and black Merinos
15 do. 5-5 colored and black Circassians
2 do. Silk Bandanas, black and colored
4 do. Italian Lustre
3 do. White Satin
4 do. White Quiltings
10 do. Borrie's Patent Thread, No. 22 and 25
10 do. Super high cold'd Madras Hikis, ent. to dehenture
100 pieces Fine English Sheetings, for city trade
3 cases Catoon Cord
2 do. Super blue, black, and colored Cloths—selected expressly for Merchant Tailors
23 bales low priced plain Blankets.

PAPER—

IMPERIAL AND ROYAL—From the celebrated Saugerties Mills, of the following sizes, all put up with 480 perfect sheets to each reel—

Size—24x35, 24x36, 21x34, 25x36, 26x37, 29x41, 27x38, 24x33, 24x29, 24x23, 21x36, 21x37, 20x24, &c., &c.

Also—All the old stock of Medium will be sold at very reduced price, to close sales, the Mill having discontinued making that description of paper.

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5 cases each 1600 Sheets Colored Paper
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2 do. do. do. do. Red do Gold do
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